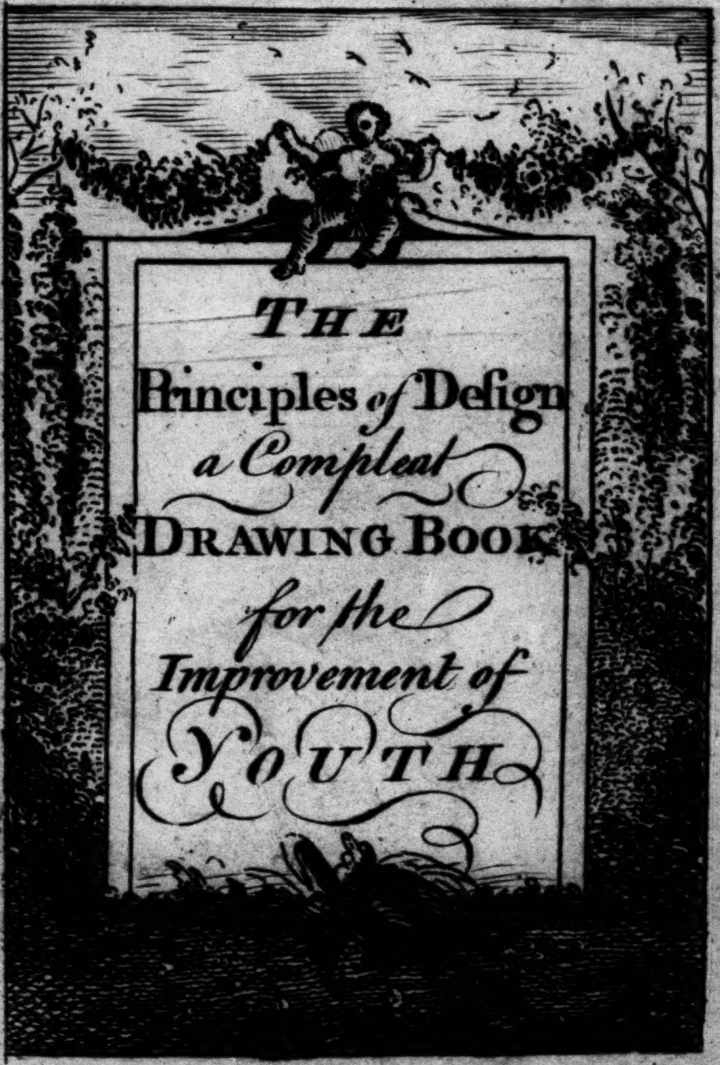

THE
Principles *of* Deſign
a Compleat
DRAWING BOOK
for the
Improvement of
YOUTH

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BRITISH MUSEUM

The PRINCIPLES of DESIGN

FOR THE CURIOUS YOUNG GENTLEMEN AND LADIES,
Who ſtudy and practiſe the noble and commendable ART OF DRAWING,
COLOURING AND JAPANNING: Or a NEW and COMPLETE

DRAWING-BOOK;

Conſiſting of Variety of whole Figures in divers Poſitions, and all the ſeveral Parts of
the Human Body from Head to Foot, *&c.*
In Fifty COPPER-PLATES, neatly engraved.
Deſigned chiefly for young Beginners, very neceſſary and uſeful for all Drawing Schools, Boarding-Schools, *&c.*

TO WHICH IS PREFIXED

AN INTRODUCTION TO DRAWING;

Containing a Deſcription of the Inſtruments and their reſpective Uſe, and the Materials proper for Drawing; Rules for managing the Pencil, and the beſt Method for attaining Perfection in the ART; with Inſtructions by which a young Practitioner ſhall be enabled to form a Judgment as well of his own Performances as thoſe of others; with eaſy, proper and neceſſary Leſſons for him at his firſt Entrance. Alſo the Names of the Colours uſed, with Inſtructions to temper and mix them, and fit them for Painting. Likewiſe, Colours for waſhing Landſkips, or Prints of any Kind.

Tranſlated from the FRENCH of Monſieur GERRARD DE LAIRESSE. K

LONDON: Printed for H. SERJEANT, at the BLACK SWAN, near TEMPLE-BAR. 1777.

[PRICE FOUR SHILLINGS.]

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INTRODUCTION.

NONE of the arts which have been invented for the uſe or amuſement of mankind, can boaſt ſo great a number of admirers as that of DRAWING; and very juſtly, for it gives ſuch an agreeable repreſentation of things, that we are apt to fancy we ſee objects which have no real exiſtence, and that the imagery before us, which is no more than a painted cloth, actually breathes. The whole creation, with all its works and wonders, comes within the power of its imitation. It ſets before us things long ſince buried in oblivion, exhibits to perfect view the moſt noted actions of people who have been long in their graves, and ſhews us our anceſtors, in a perfect reſemblance of their feature, through ſeveral ſucceſſive generations.

That therefore youth may be inſtructed how to attain a good degree of perfection in the art, we ſhall preſcribe the beſt rules we are able, at leaſt ſuch, as we apprehend, are abſolutely neceſſary, for their information; after which we ſhall give them ſome very uſeful and pertinent inſtructions for their better underſtanding of this art.

RULES *for the Direction of the young Practitioner in the Art of* DRAWING.

IT is highly neceſſary for him who would draw well, to underſtand what is truly good and beautiful in a draught: in order to which, the moſt expeditious method will be to compare prints and draughts together. Many painters have grievouſly miſcarried, by ſatisfying themſelves only with imitating bad pieces, without giving any ſcope to their own genius, or improving their knowledge in judging of the beauties and defects of a picture. The ideas in our minds may in a great meaſure ſerve us for a model.

But the labour of the hand muſt indeed aid and aſſiſt that of the brain; for whoever would be an able artiſt, muſt, by continual practice, make the art habitual. The rules of all arts are ſoon learned, but to attain perfection in any of them, a long practice and ſtrict attention are abſolutely requiſite. It is a true maxim, that lazineſs was never the parent of any thing excellent. *Drawing* is not attainable but by a length of time, or perfection in it acquirable, unleſs the hand be frequently employed in the practice, and the mind in judging; every day ſhould produce ſomething, and the hand give frequent proofs of the ſpeculations of the head.

He who propoſes to gain an entrance into *Minerva*'s cabinet, muſt make his approaches gradually; thus in the art of *drawing*, though the repreſentation of the human figure, or many figures in a piece, be the principal object which every practitioner has chiefly in view; yet he muſt not make this his firſt eſſay, but proceed to that by proper and regular ſteps. Let the firſt part of his ſtudy be to draw ſtreight and curved lines, ſquare, round, regular, irregular and inanimate figures; alſo parts of human figures, as the eye, the ear, the hand, feet, *&c.* This will be a good foundation whereon to erect his future ſtructure; for by this means he will acquire a readineſs of hand, a freedom and exactneſs in drawing lines, and accuſtom himſelf to the exerciſe of his patience; Qualifications abſolutely neceſſary for one who would be eſteemed an exact copier of nature, eſpecially in pieces that require a length of time, and more than ordinary ſkill in the performance.

The out-lines are the circumferent ſtrokes of a figure; the perfection of a good out-line conſiſts in the freedom and boldneſs of the ſtroke, and the due proportion of all its parts: to attain which, the ſcholar is admoniſhed to reject all mean and trifling practices, ſuch as tracing the original through oil'd paper, or making uſe of thin paper for the ſame purpoſe, or taking advantage of any artificial light. The uſe of ſuch deceptions will certainly prevent all progreſs and improvement in *drawing*.

For ſome time at firſt, be ſatisfied with practiſing upon a good out-line, without aiming at a finiſhed piece, nor is it neceſſary that you ſhould, as yet, hatch or ſhade your own draught; your out-line at firſt muſt be ſketched with ſlight and faint touches, that you may have an opportunity to amend it where proper, which will have the leſs appearance of being retouched. In every ſtroke endeavour an exact imitation, and when ever you mend the out-line, either by taking away a little of its parts, or by ſwelling the others, be ſure to loſe nothing of the freedom and boldneſs of it. Mind frequently to compare your copy with the original, take particular notice of what is amiſs, and let not the leaſt fault eſcape uncorrected, that ſo in the draught, which you may afterwards make the ſame original, theſe errors may be avoided; for you muſt paſs from one original to another, 'till you are in a good degree maſter of the firſt. The beſt and ſureſt method of practice is, to make a great number of ſketches of the ſame figure, in each of which endeavour to excel what you did in the former.

In your firſt operations proceed ſlowly, for haſty productions are ſeldom beautiful or correct, and the deſign is often thus ſpoiled in the firſt attempt; it is no eaſy matter to amend bad habits; expedition in performance is acquired by conſtancy in practice.

When you ſit down to work, and all the time you are at it, take a ſtrict and cloſe view of your original, and in your mind divide it into ſeveral parts; take due notice of the length, breadth, and ſimilitude of each part; obſerve the proportion of each to the other, and to the whole, the diſtances between the parts, and the parts that lie parallel, or are exactly oppoſite to each other.

When you have finiſhed your copy, and laid aſide both example and draught, let your mind be employed for ſome time on other affairs, then return to it again, and view your work afreſh, and very probably you will diſcover faults which did not appear to you before.

Let your out-lines be large and ſmooth, and drawn in a flowing gliding manner: for if they are too ſtreight they will carry a diſagreeable ſtiffneſs, but if drawn according to this direction, they will have the reſemblance of life and motion, and appear with an eaſy grace.

In all your draughts let there be a perfect relation between the parts and the whole, and uniformity run through the whole piece, that is, let every member be made for its own head, and agree with it; you muſt not put ſtrong limbs to a body that is conſumptive, or to old age in its decay; nor muſt you be leſs exact in pairing the eyes, hands, legs and feet, for the leaſt diſproportion will be a blemiſh; and when any of the limbs are not proportionate to the reſt.

When you draw the muſcles, take care to inſert them according to the rule of *anatomy;* they muſt not be crouded into ſmall ſections, but kept as entire as poſſible, and only the principal muſcles expreſſed; in a member which is to expreſs any particular force, they muſt be ſhewn large, as in the leg when it ſupports the body, or in the arm when it lifts a weight, *&c.* and be more ſwelled than in any other members.

The MATERIALS *proper for Drawing.*

THE materials neceſſary for this purpoſe, are either pencils of black lead, or black lead fixed in porcrayon, charcoal, chalk, black, red and white paſtils or crayons, pens, hair pencils, and *Indian* ink.

Nothing is more proper for beginners to practiſe with than black lead, in drawing plain lines, *&c.* eſpecially as this makes a ſmoother ſtroke than can be done by charcoal or crayons. Cut your lead with a penknife 'till you have brought it to a fine point, that it may give it a neat ſmall ſtroke. Or you may fix a piece of the ſame lead in a porcrayon. But whatever it is you ſketch with, uſe yourſelf to hold it long-ways in your hand, and let your fingers be much farther from the point, than the nib of a pen is when you write, and let your ſtrokes be formed with light gentle touches; thus will you gradually acquire a ready command of hand, and you will with eaſe make your out-line free and bold.

In practiſing after limbs and figures it will be proper, at firſt, to draw the rough ſketch with charcoal, which is more eaſily diſcharged from paper than black lead. Slit your charcoal in ſmall ſlender pieces, one of which fix in a porcrayon the better to hold it; then ſharpen it to a point, and lightly, but correctly, ſketch out your original. When you have ſo done, if there is any thing you miſlike in the performance, you may eaſily wipe it out by bruſhing it with a feather or clean rag. When you have ſecured your out-lines with charcoal, proceed thus; take a feather and wipe them ſlightly over with it that it may appear faint, then go over the line with black or red-lead, and correct them where ever you can. If after all this you ſtill ſee any errors to amend, take a bit of crumb of a ſtale white loaf, with which you may diſcharge any part of it you pleaſe, by rubbing it therewith.

You may uſe red-lead, or red or black chalk in the ſame manner as black-lead.

If in heightnings, or when you would give ſtrong lights, or draw on coloured paper, uſe white chalk and tobacco-pipe clay.

Piſtils and *crayons* are terms which perhaps the learner may not readily underſtand; they are colours mixed up with tobacco-pipe clay, which muſt be worked into a paſte, and rolled up into the thickneſs of a quill two or three inches long, and then dried;

when fit for uſe, the artiſt works them on coloured paper, but not in hatchings, as black and red-lead commonly are; the colours are rubbed and worked together, ſo that there is no ſingle ſtroke, but the whole appears as if only a bruſh had been uſed.

The crayons is a very expeditious manner of drawing, and when ſkilfully handled, always produce a delicate ſoftneſs and fine expreſſion; however it muſt be obſerved, that the careleſs or rude touch of a finger may at once blot out all the beauties of this fine work; to prevent which, let it be preſerved in books, or in a frame under a glaſs. The crayons will be worked more eaſily if the grain of the paper be a little rough, and be expreſſed more ſtrongly than when the paper is quite ſmooth; or if the paper be ſomewhat dark or browniſh, or what they call a whited-brown, it will give a relief to the tender part of the work, by ſhewing the light ſtrokes of it.

In ſhading draughts ſometimes pens are uſed for hatching the croſs ſtrokes; however, the hair pencil and *Indian* ink ſerve much better for this uſe, which are not only proper for hatching by ſtrokes, but for ſhading by a method much more expeditious, that is by waſhing, which is the ſame way of working as with hair pencils and water colours. In hatching, the ſhades are produced by lines, not unlike the ſtrokes which ſhade a print engraved; but in waſhing, no lines appear, but the ſhades ſhew themſelves like thoſe in a *metzotinto* print.

Of the Tints of Lights and Shadows.

LIGHTS and ſhades, when judiciouſly diſpoſed, give the appearance of ſubſtance, nature and diſtance to ſuch bodies as the pencil repreſents. Suppoſe, for inſtance, a circle drawn on a piece of paper; imagine you ſee it fill'd up with any even colour, you can conceive of it no otherwiſe than as a round, flat equal body; but if you put the ſtrongeſt of the colour in the middle, and weaken it gradually towards the extremities, you will perceive an agreeable deception, and inſtead of a flat even body, it will have the reſemblance of a ball or globe.

Wherever the colour appears the moſt lively, there the object catches the eye firſt, and ſeems neareſt to it; but where the colour weakens and goes off, it grows faint, and at length ſeems to fly off and break away from the ſight. Thus the painter, by breaking and diminiſhing his colours, throws that behind which he has a mind ſhall be leſs viſible.

When you round the parts of an object, it requires the niceſt touch of the pencil to draw the extremities ſo, as that in turning they ſhall loſe themſelves inſenſibly and confuſedly, without too ſudden a tranſition of the light into the ſhadows, or of the ſhadows into the light, but let the one paſs into the other as it were reciprocally and imperceptibly, that is, by degrees of light into ſhadow, and ſhadow into light.

When your objects are to be painted light, you muſt allow a due breadth of ſhadow to ſuſtain them; if dark, a ſudden light muſt riſe behind them, to ſeparate them from the ground, or from other objects that are placed behind them, or elſe they will appear as if they were ſticking upon each other in a confuſed manner; whereas by a juſt oppoſition of light to ſhade and ſhade to light, a projection is given, which makes a ſeparation of the objects.

You muſt keep a proper ballance between light and ſhadows, and introducing a broad light into your draught, you muſt give it a large ſhadow. You muſt make your light ſerve as a repoſe to the darks, and the darks to the lights.

It ſhould be farther obſerved in regard to lights and ſhades, that it is not enough that remote objects be coloured in a more faint and languid manner, but the more or leſs diſtant they are, the parts ſhould appear more or leſs confuſed; the eye cannot minutely diſcriminate an object which is at a diſtance from it. We can ſee human figures at a ſtreet's length, but cannot diſcern the features of their faces or the plaits in their cloaths; ſo the innumerable leaves of a diſtant grove appear to the ſight but as one maſs.

In the repreſentation of bodies, you muſt always give them ſuch *lights* as are moſt proper and convenient for their ſuppoſed ſituations. Suppoſe the objects before you in the fields or open air, and the ſun obſcured with clouds, your buſineſs is to introduce an univerſal light, though not vivid or ſtrong, your ſhades too muſt be faint. But when the ſun appears in all its glory, your lights muſt then be very ſtrong and bold, and the ſhadows exceeding dark.

Suppoſe again, that the object you repreſent is in a room, a little, though not very much illuminated, and to ſurvey it you take your ſtation without, and ſtand level with the light that ſtrikes upon it, that figure muſt have very ſoft ſhadows, which will ſhew it very beautifully, and though the ſhadow be ſo ſoft, yet the figure will ſeem as if it were emboſſed, and have a very bold appearance.

When a ſmall light illuminates a body, the ſhadows on the dark ſide appear large, and their extremities very bold: whereas a large light renders the ſhadows on the darker ſide more diſtinct and much ſofter than their limitations.

Uſeful Inſtructions for the young Practitioner.

HE that would be a perfect maſter in the art of *drawing*, muſt learn to ſketch well, to which therefore he ought to give the greateſt attention. In copying a ſtatue, ſome perſons begin with the head, which they entirely finiſh before they proceed any farther; by which means it frequently happens, that they either make the head too little or too big, and the other part ſo diſproportionate, that there is but ſmall reſemblance of the original, occaſioned chiefly through a want of duly obſerving diſtances. When therefore you have any thing to draw, let your firſt care be to divide it into its different parts, then meaſure the diſtances in the original with your eye, mark the diſtances and length of each diviſion with a faint line on your paper, and make a ſketch of the whole figure before you proceed to finiſh any part of it; ſo will you ſecure the proportions in the exacteſt manner.

The learner will find among theſe examples ſeveral draughts of the parts of the face, as the eyes, noſe, mouth, *&c.* viewed in different poſitions, all which he ſhould practice upon before he attempts a whole face; for which purpoſe we ſhall lay down ſuch leſſons and inſtructions concerning an oval, with its ſeveral changes and variations, and of the croſs in the ſame, as will enable him to figure all bowings and returnings, reclinations and inclinations of all ſorts of faces.

The head, you are to obſerve, has the ſhape and form of an egg, or oval; this head has eyes, eye-brows, noſe and ears, which muſt be placed in their proper ſituations, by running a croſs through the oval. By this means you will divide the perpendicular in the oval into four equal parts, which will make the head meaſure four noſes in height, the face three only; the diameter croſſing the perpendicular, divide into five parts, each being the breadth or wideneſs of one eye; this diameter is called the ocular line, or that whereon the eyes are to be placed; you muſt therefore draw a ſtreight line from the top of the right ear through both eyes to the top of the left ear; and the line drawn from the top of the head down through the noſe, mouth and chin, is called the perpendicular, croſſing the diameter or ocular-line at right angles; theſe lines together we call the croſs of the oval; upon which croſs (whatever

ever ſituation the face is in) you muſt place the eyes, noſe, mouth, and ears in proper places.

When you underſtand this thoroughly, and have fixed it in your mind, you will ſoon be able to draw good faces out of your own fancy and invention, and execute them in a maſterly manner: But if you accuſtom yourſelf to draw only after a print, draught or picture, without knowing the uſe of the croſs-lines, and the proportion of a face with its parts, you take a wrong method, don't know what you are about, and will never attain to any degree of perfection.

Having thus inſtructed you in the ſeveral methods of drawing a face, we come now to give you the dimenſions and proportions of the ſeveral parts of the body.

It was cuſtomary with the *antients* to allow eight heads to their figures, though ſome of them have only ſeven. The moderns uſually divide a figure into ten faces, taking it at the crown of the head, and ending at the ſole of the foot, thus:

From the crown of the head to the forehead, is the third part of the face.

The face takes its beginning at the root of the loweſt hairs on the forehead, and its end is at the bottom of the chin.

Painters divide the face into three proportional parts; namely, the forehead, the noſe, the mouth and chin.

The diſtance from the chin to the pit betwixt the collar-bones, meaſures two lengths of a noſe.

From the ſame pit to the bottom of the breaſt, one face.

From thence to the navel, one face.

From the navel to the privities, one face.

The diſtance from the genitals to the upper part of the knee, two faces.

The knee itſelf meaſures half a face.

Meaſure from the lower part of the knee to the ancle, and you will find it two faces.

From the ancle to the ſole of the foot, is half a face.

When a man ſtretches out his arms as wide as he can, a line drawn from the top of the longeſt finger of the right hand to the top of the longeſt finger on the left, will meaſure the length of his whole body, or he will find himſelf as broad as he is long.

The diſtance from ſide to ſide of the breaſts, two faces.

The bone of the arm called *humerus*, from the ſhoulder to the elbow, meaſures two faces.

The bone called *cubitus*, with part of the head, meaſuring from the tip of the elbow to the root of the little finger contains two faces.

From the box of the ſhoulder-blade to the pit betwixt the collar-bones, is one face.

In taking the meaſurement of the breadth, from the extremity of one finger to the other, to ſee if it be equal to the length of the body, you are to obſerve that the boxes of the elbows with the *humerus*, and of the *humerus* with the ſhoulder-blade, bear the proportion of half the face, when the arms are ſtretched out.

The ſole of the foot meaſures the ſixth part of the figure.

The hand is the length of the face.

The thumb, of the noſe.

From the place where the pectoral muſcle, or that muſcle which makes the breaſt, diſappears, to the middle of the arm, meaſures four noſes.

Carry your meaſure from the middle of the arm to the beginning of the hand, you will find it five noſes.

Your longeſt toe is the length of your noſe.

The tops of the two nipples, and the pit betwixt the two collar-bones, make an equilateral triangle.

Theſe farther rules are to be obſerved in drawing a head, *viz.*

You muſt ſet the eyes at ſuch a diſtance from one another, that you may place one between them.

The mouth, when ſhut, has the dimenſions of an eye.

The ears are always on a level with the eyes, a-top and below with the noſe, whether it be ſhort or long.

The noſtril ſhould be placed exactly againſt the corner of the eye.

In a face that is flat, the cheeks ſwell out, and one that is lean, the cheeks fall in, and the jaw-bones ſtand out.

Having finiſhed our inſtructions for the drawing of the face, let us now proceed to draw a man at full length.

In the firſt place you muſt make your oval, then divide as before directed; you then draw a perpendicular line from the top of the head to the ſole of the foot, which you muſt divide into eight lengths. This will be a good direction in placing your figure upright, or in whatever action the poſture requires, whether it either falls in or ſwells out. You muſt make the length of one head between the chin and the breaſt, the third meaſure muſt reach to the navel, the fourth from thence to the genitals, the fifth to the middle of the thigh, the ſixth comes to the lower part of the knee, the ſeventh to the lower part of the leg, and the laſt reaches to the heel or ſole of the foot.

In every meaſure or diviſion you muſt take particular notice what touches there are of the muſcles.

The leg muſt be firſt drawn on which the body ſtands, then the other, after which draw the arms and hands. You muſt firſt draw all the parts very lightly only with a coal, becauſe that will give you the leaſt trouble in rubbing out or altering.

The hands, you muſt obſerve, are twice as long as broad, and each of their parts has its particular length, breadth and thickneſs.

The nail of the finger makes about half the joint it is upon.

The length of the foot meaſures the ſixth part or height of a man, or five eights more in length than in breadth.

Take notice, that the length of the face and hands are exactly equal, and is juſt the tenth part of a perſon's height.

Having thus inſtructed you to draw a complete man, we ſhall in the next place lay down ſome rules for drawing of children.

Some will have the length of a child to contain five meaſures of the head, as thus: from the top of the head they make three, and the thighs and legs two more; the breadth between the ſhoulders is the length of one head and a half; the breadth of the body above the navel, the length of one head; and the breadth of the thickeſt part of the thigh is one third of two lengths of the head; the breadth of the knee meaſures exactly the diſtance between the eyes and the chin; the brawn of the arm and ſmall of the leg are juſt the thickneſs of the neck.

If you take the proportion of a child ſtanding backward, you will find it of the ſame meaſure as the former.

RULES *for filling up Empty Figures.*

WHEN with your charcoal you have drawn the out-lines, you muſt retouch them with your red-lead crayon, and then with a feather bruſh away the dirtineſs of the charcoal. When you have done that, you muſt retouch with a gentle hand ſuch places as have been fouled in the rubbing, as the hair, eyes, mouth, fingers, toes, out-lines, *&c.* Let me alſo caution you, that in thoſe out-lines which are open to day, you make your ſtrokes very light, but ſtrong in thoſe which are darkened. Thus will the out-lines appear in a natural manner, and add a wonderful beauty and grace to human figures and all other objects. When this is done, you muſt begin the ſhades with a ſingle hatching, but pretty ſtrong; you begin it at the top, proceeding inſenſibly to the bottom, as evenly in the diſtance as you poſſibly can. You then go on to the roundings, which you muſt alſo expreſs by ſingle ſtrokes, with ſuch a light as the object before you requires; be cautious not to make your ſhadows too hard or dark at firſt. If you would preſent the perſpective in the beſt manner, begin the ſhadows lightly and faintly, and heighten them afterwards; and you will ſoon be pleaſed with the agreeable effect.

Inſtructions how to draw after a PICTURE, *a* MODEL, *or the* LIFE.

WHEN you have got a picture to draw after, be ſure to place it in a good light, ſo that the ſight of your eye and the light of the day may fall together on the picture.

ture. Place yourſelf at a moderate diſtance, according to the largeneſs or ſmallneſs of the picture, at leaſt no farther off than that you may, with a glance of your eye, ſee the whole picture at once; for the larger the picture is, at the greater diſtance you muſt ſit to draw it. Be careful likewiſe to place your print exactly right before you, and let it not lie down flat; for if it be laid flat, you will quickly ſee the figures in it fore-ſhortned. The paper you draw upon you muſt lay five or ſix times double upon a pannel board ſet in your lap, and raiſed as high as you can with your knees, or let it be reſted on a form or ſtooping deſk, ſo that your work may ſtand upon one end before you. Thus will you be enabled to judge of the ſimilitude between your draught and the original, which it will be impoſſible for you to do if it lies flat before you. The next thing you have to do is, to gueſs as near as you can at the middle of the thing you have to draw, whether a picture or any other matter; then mark it on your paper with the point of your coal; when you have done this, look for the largeſt figure (if there happens to be more than one) and touch them lightly in proper places, and ſo all that is in the picture, you will then preſently diſcover whether your gueſſing and ſketching be true or not: But beſides this, before you draw a ſtroke, be ſure you do it with good reaſon and obſervation, and be very careful about the great and general parts, and meddle not with the ſmall breakings 'till the next ſketching, and by conſtantly practiſing in this manner, you will inſenſibly acquire a facility and judgment in your work. Another rule you are to obſerve is, always to begin on the right ſide of the figure, for ſo you have the firſt ſtrokes conſtantly in your eye, and the reſt will naturally follow and give leſs trouble: but if you begin on the left ſide, your hand covers the object from your ſight. Having thus made a rough ſketch, you ſhould carefully review and examine it, and ſee if it be done according to art, and if the action of the figure or figures in it be anſwerable to the original; now, as actions are the life of a picture, they muſt ſhew themſelves in the firſt draught, however rude it be, or you can never expect it will be happily finiſhed. You muſt then correct your ſketch and improve it in neatneſs and air, by adding and diminiſhing as you ſee proper, as you may eaſily do with your charcoal. But in doing this, be mindful that you don't ſpoil the firſt good action in it, which may eaſily be done, if you don't well obſerve the movements of the ſeveral parts.

If you can, always make choice of a *North light* for your ſituation, becauſe it is leſs variable than any other. Should you ſit at a South window, you will find it proper to place a ſaſh of oiled paper before it, which will break the intenſeneſs of the ſun's rays, and diffuſe them more equally without any ſenſible variation.

The next thing you have to do is, to put your figure, whether it be the *life* or a *model*, in a proper poſition: the beſt light is that which is high and equally diffuſed, not too ſtrong nor glaring; when objects are ſo diſpoſed you ſee all their beauties, and the minuteſt parts ſhow themſelves to advantage.

For Drawing the FACE.

WHEN you have drawn the circle of the face (which you muſt do at firſt with a plain circular line, without making any bending or indentures in or out) make a ſtroke from that place of the forehead which is even with the chin, down the place where you intend to fix the middle of the noſe, and the middle of the mouth; this ſtroke, you muſt obſerve, muſt be ſtruck that way which the face ſhould turn, either to one ſide, or ſtraight down, which ſtroke will be a great help to you in placing the features rightly, ſo that they may not ſtand awry, but directly one under another. Now if the face turn downward, the ſtroke muſt be ſtruck in ſuch a manner that the eyes may turn anſwerable with the face downwards; when you have done that, make another ſtroke for the length of the noſe where the end of it ſhould come, and another ſtroke for the mouth, that it be not made crooked, ſtill obſerving to make all the ſtrokes to turn one way, up or down, according as the face turns, that is, if the face turns up or down, the eyes, noſe and mouth, muſt turn with it; when you have made theſe ſtrokes exactly, proceed to place the features according to the preceding rules.

In the face is uſually obſerved this threefold proportion. 1. From the top of the forehead to the eye-brows. 2. From the eye-brows to the bottom of the noſe. 3. From thence to the bottom of the chin. This proportion however is not conſtantly the ſame; for in ſome perſons the forehead is lower than in others, the noſe of ſome longer and in ſome ſhorter than others; and therefore this rule can only be obſerved in a well proportioned face. The diſtance between the two eyes is juſt the length of one eye, if in a full face: but if it turn any thing aſide, then that diſtance is leſſened accordingly; the noſtril ought not to come out farther than the corner of the eye in any face, and the mouth muſt be always placed between the eyes and the chin, juſt under the noſe.

As the greateſt difficulty, and principal part of the art lies in the lively drawing of the face, I ſhall add theſe farther directions to perfect you in this particular branch of your art.

Firſt, If you would draw a face exactly, ſo as to reſemble the original you draw it from, you muſt in the firſt place take notice of the phyſiognomy or circumference of the face, whether it be long or round, fat or lean, big or little, that ſo you may be ſure to draw the phyſiognomy, or bigneſs of the face right; if it be a fat face, you will perceive the cheeks to make the ſide of the face ſwell out, and ſo make the face look as it were ſquare; if it be a lean face, the jaw-bone will ſtick out, and the cheeks fall in, and the face will look long and ſlender; if it be neither too fat nor too lean, the face will for the moſt part be round.

When you draw the utmoſt circumference of a face, you muſt take in the head and all with it, otherwiſe you may be deceived in drawing the true bigneſs of the face.

Secondly, You muſt carefully and judiciouſly obſerve and diſcern all the maſter touches, which give life to a face, or diſcover the grace or diſpoſition of the mind, in which lies the whole graces of the work, and the credit of the workman; thus a ſmiling countenance is eaſily diſcern'd in the mouth, when the corners of it are a little turn'd up; a frowning countenance in the forehead, eye-brows bending, and the top of the noſe between the eyes ſomewhat wrinkled; a ſober and ſtaid countenance is beſt diſcerned in the eye, when the upper eye-lid comes ſomewhat over the ball of the eye; a laughing countenance is eaſily diſcerned all over the face, and ſo is an angry wrathful countenance, by extraordinary frowning; there are alſo ſome touches about the eyes and mouth, which give life and ſpirit to a face, which you will by degrees find out by frequently obſerving and imitating the works of the beſt maſters.

Further Rules for the young Practitioner in Drawing.

1. YOUR charcoal being neatly ſharpen'd, you muſt, in the drawing of a face, firſt lightly draw the out-ſtroke, or circumference of the face exactly, according to the bigneſs of the pattern, making it to ſtand fore-right, or to turn upwards or downwards according to your pattern; then make ſome little touches, where the features, namely, the eyes, noſe, mouth, chin, ſhould be placed, not drawing them exactly at the firſt; when you have thus lightly pointed out the features, then begin to draw them more exactly, and ſo proceed 'till the face be finiſhed; which being done, then add the beard, and other things about it. In drawing a ſide-face, you need

not at firſt draw the noſe, mouth, and chin, that ſtand in the outmoſt line, but only make it firſt but a bare circumference, turning this way or that way, according to the pattern, and then make the mouth, noſe, and chin in their places and juſt proportion.

2. You muſt be ſure to place the muſcles in the right and proper places; by the muſcles I mean all the ſhadows that are cauſed by ſome dents or ſwellings in the face, and be able to find out the reaſon of every muſcle, that ſo you may proceed to work with the more judgment; the muſcles will be moſt viſible in an old wither'd face, and you muſt firſt draw the moſt principal of them, and then you may draw the more eaſily the leſſer within; be ſure to be very exact in the placing of them, or you will ſpoil your draught be it ever ſo good.

3. Obſerve to make the ſhadows rightly, and be careful not to make them too dark where they ſhould be faint; or if you do, you can never recover it to make it light again, and ſo the whole face will be marr'd and appear unhandſome; the ſhadows are generally fainter and lighter in a fair face than in a ſwarthy complexion. When your draught is finiſhed, you will do well to give ſome hard touches with your pen where the ſhadows are darkeſt, which will add a great life and grace to your drawing.

When your face is finiſhed, you come next to the ears and hair, wherein you muſt obſerve this rule: having drawn the out-line of it you muſt firſt draw the principal curl, or maſter ſtroke in the hair, which will guide you with eaſe to do the leſſer curls which depend on them; always make your curl to be bent, and turn exactly according to the pattern, that they may lie looſe and faſt, and not appear ſtiff, ſtubborn and unpliable. When you have drawn your curl exactly, you muſt in the laſt place ſtrike in the looſe hairs which hang careleſsly out of the curls.

The face being drawn (which is the principal thing in the art) then proceed to the hands and arms, legs and feet, and ſo to full bodies of men and women.

Of drawing the Hands and Feet.

THE actions and poſtures of the hand are ſo various, that no certain rule can be given for drawing of them, only this in general; when you firſt draw it with charcoal, you are not to do it exactly, that is, you muſt not make the joints or veins, or other things, to appear more than lightly or faintly, and to touch out the bigneſs of the hand, and the manner of turning it with faint touches, and not with hard ſtrokes; if you have done that right, then you part the fingers aſunder, or cloſe, according to your pattern, with the like faint ſtrokes; then mark that place where any of the fingers ſtand out from the others, and make a faint reſemblance of it; having ſo done, if you perceive your draught to be right, proceed to draw it more perfectly, and make the bending of the joint, the wriſt-bone, and other principal things ſomewhat exactly. And, laſtly, go over it again, and draw every ſmall bending, or ſwelling of the fingers, and make the nails, knuckles, and veins, ſo many of them as appear, and every thing elſe that you can diſcern.

The proportion of a hand you have ſufficiently deſcribed in the print, which ſhews how many qualities or equal meaſures there be in it, which you ſhould endeavour to be acquainted with, that ſo you may know when a hand is well proportioned with juſt and equal diſtances. But you are to obſerve this rule, or exception, that according as the hand turns one way or other, the proportions muſt be ſhortened according as they appear in the eye, as you may ſee by the fore-ſhortning of the hand in the print; ſo much as the hand turns away from our ſight, ſo much it loſes of its ordinary proportion, and is made to ſhorten unto that proportion that the eye judges of it, nay, ſometimes a whole finger, ſometimes two or three, or more, are loſt to our ſight, by the turning of the hand another way from us, and ſo they muſt be wholly left out, and not made. As to the feet, it is not ſo difficult to draw them as it is the hands, and you muſt proceed in the ſame method in the one as in the other. When you can draw hands and feet pretty well, then proceed to arms and legs, wherein is little difficulty; after which you may proceed to whole bodies.

RULES *to be obſerved in drawing the whole Body.*

1. IN the drawing of a body, you muſt begin with the head, to which you muſt give juſt proportion and bigneſs, becauſe all the body muſt be proportioned according to the head.

2. When you have drawn the head, proceed to the ſhoulders, and go on to the trunk of the body, beginning at the arm-pits (leaving the arms till afterwards) and ſo draw down to the hips on both ſides, and be ſure you obſerve the exact breadth of the waiſt: when you have done thus, draw firſt that leg on which the body ſtands, and afterwards that which ſtands looſe, or from the body, and laſt of all the arms, and then the hands, either joined to the body, or ſeparated from it, agreeable to your pattern.

3. Obſerve in your drawing to place the parallel joints, ſinews and muſcles, directly oppoſite in a ſtrait even line one againſt the other, as the ſhoulders, arm-pits, waiſt, hips, knees, and ſo every thing elſe, that one may not be higher or lower than the other, that the body may not ſeem crooked or deformed, but every parallel joint, bend, *&c.* may directly anſwer the other that is oppoſite to it; to which end you may ſtrike a ſtrait ſtroke directly croſs the ſhoulders, to direct you to place them even and ſtrait one againſt the other, which you may likewiſe do in other places, as the arms, waiſt, hips, thighs, or any other parts that are oppoſite; where you ſhould place the one even with the other; but you muſt have the ſame care in all parts of the body, as you have in one place, where any bendings or members of the body have or do require a direct oppoſition one to the other, you make uſe of this help and direction.

4. Obſerve, that if the body turn one way or other, then this ſtroke muſt be ſo ſtruck, that it may anſwer the bowing of the body; thus, if the body ſtoop a little downwards, you muſt ſtrike the ſtroke ſloping or ſideways, in which caſe you muſt make the ſhoulders and other things which ſhould be ſtrait againſt one another, to be ſomewhat higher than one another, ſo that the ſide which the body turns upon, the ſhoulders

and other things that otherwiſe ſhould be placed even againſt the other, muſt be made ſomewhat lower than the other ſide, more or leſs according to the ſtooping of the body.

5. As you are to be careful in the placing rightly all level or parallel joints, bendings, ſinews, and muſcles, ſo you muſt be very exact in all perpendicular joints, muſcles, *&c.* that is, when you have drawn the out-lines of your piece, and are come to draw the joints and muſcles that are within the body, you muſt be as exact in placing them, that is, directly one againſt another, as you are in placing thoſe even that are oppoſite to one another. To the end that you may place things exactly perpendicular, that is, in a ſtrait line one under another, you may ſtrike a ſtrait perpendicular line from the pit of the throat down to the privities, juſt in the middle or ſeam of the body, where you diſcern the parting of the ribs, and from thence ſtrait down to the feet; which line will direct you to place things perpendicularly even, that the body may ſtand ſtrait upright, and not appear crooked or awry.

6. Take notice of the bowings and bendings that are in the body, to make that part which is oppoſite to that which bends, to anſwer to it in bending with it; thus, if one ſide of the body is bent in, the other ſide muſt ſtand out anſwerable to the bending in of the other ſide; if the back bend out, the belly muſt bend in; if the belly

come in, the back muſt ſtick out; if the breech ſtick out, the thigh that anſwers to it in oppoſition, muſt come in; ſo alſo in any other part of the body; as when the knee bends out, the hams that anſwer to it muſt come in; and the ſame rule muſt ſtrictly be obſerved in all other joints of the body, otherwiſe the body will be made groſly and abſurdly, and without any proportion.

7. Be careful to make things of an equal proportion and bigneſs, that one arm, or leg, be not bigger than the other, or one breaſt larger than the other, or any part of the body in an unjuſt proportion; but as every thing in a face muſt anſwer to the bigneſs of the face, ſo one member muſt anſwer to another in bigneſs, that ſo there may be a perfect harmony in all the parts of the body; that it may not have broad ſhoulders and a thin ſlender waiſt, a raw-bone arm and a thick gouty leg, or any part diſproportionable from the other, unleſs it be ſo that any part of the body do turn awry from our eye; thus, if one arm ſhould be ſeen ſide-ways, and the other fore-right, then the one arm muſt be made ſo much leſs than the other by how much it turns away from our ſight, and appears leſs to our eye, and if one leg be ſeen full or fore-right, and the other leg be ſeen ſide-ways, then it muſt be made ſo much leſs than the other, by how much it turns away from your ſight.

8. As a juſt proportion muſt be obſerved in the bigneſs of your draught, ſo likewiſe in the length, that one thing may not be too long for the other, the body not too long for the legs, nor the legs too ſhort for the body, that neither leg, nor arm, be diſproportioned in their lengths, but that every thing have its due proportion both for length and bigneſs; unleſs when the body ſhortens away in any part from your ſight; as thus, if one leg ſtand behind the other, it muſt be made ſo much ſhorter than the other, according to the diſtance it is removed from your eye; ſo likewiſe if one arm remove itſelf ever ſo little out of your ſight, that which comes firſt to the eye, and ſtands neareſt to the ſight, muſt be made longer than the other, and the other be made ſo much the ſhorter, by how much it turns away from your ſight. So, again, if any part of the body be fore-ſhortened, that is, if it appears ſo to your eye, as to hinder the full light of the latitude of that part of the body, then the body, or that part of the body muſt be made to ſhorten, according to that proportion that the eye judges of it.

9. Obſerve the due diſtance of one thing from another, that you may be exact in your draught, and perfectly imitate your pattern.

10. Obſerve how much one part of the body ſticks out beyond the other, or falls in within the other, or whether it ſtands even with the other; to which end, you may ſtrike a ſmall ſtroke down from the top of the ſhoulder along by the outſide of the body ſtrait down to the feet; and this will direct you how far one part of the body ſhould ſtand out beyond the other, and how far other parts ſhould come in; let nothing be done without rule and judgment.

11. Let nothing be done hard, ſharp, or cutty, that is, let not the bendings that are in the body or in the joints, be made as if they were dents or cuts in the fleſh with ſharp corner ſtrokes, but finely round and ſloping, like bendings, and not like cuts in the body; this is a common fault among learners, who ſhould therefore be the more careful to avoid it by imitating their pattern exactly, in the manner of making every ſtroke and touch that is given; for nothing ſhould be done without judgment.

RULES *for drawing Landſkips.*

LANDSKIP is the expreſſing a tract of land by hills, woods, caſtles, ſeas, valleys, ruins, rocks, *&c.* in which there is not ſo much difficulty as in drawing figures; and therefore the following rules will be ſufficient.

1. The beſt way of making landſkips, is to repreſent them ſhooting away, one part lower than another, as hath been practiſed by our beſt artiſts; but others have run into a contrary error, by making the landſkip mount up higher and higher, till it reach to ſuch a height, that it ſeems as if it touched the clouds, as if the drawer had ſtood at the bottom of a ſteeple, when he took the proſpect, which is altogether incongruous; for we can diſcern no proſpect at the bottom of a hill; but the moſt proper way of making a landſkip, is to make the neareſt hill higheſt, and ſo to make the reſt that are at a greater diſtance, to ſhoot away under that, that the landſkip may appear as if taken from the top of a hill.

2. Be careful to leſſen every thing in proportion to its diſtance, expreſſing it bigger or leſs according to the diſtance it is from the eye.

3. You muſt make all your lights fall one way, both upon the ground and trees, and all things elſe, and all the ſhadows muſt be caſt one way.

4. You muſt give every thing its proper motion; as trees when they are ſhaken with the wind, their ſmaller and more pliable boughs muſt be ſhewn in ſuch an action, as if they ſtruck one againſt another, by yielding and declining from that part whence the wind blows; the ſtiffer boughs have leſs bending and motion; you

muſt likewiſe obſerve the bending of a twig when a bird ſits upon it, ſo likewiſe if it be forced or preſſed with any other thing.

Clouds in the air muſt be ſhewn with motions now gathered together with the winds, now violently condenſed into hail, thunder-bolts, lightnings, rain and ſuch like. Finally, you can make nothing but what requires a motion peculiar to itſelf, according to which it ought to be repreſented: But this rule you muſt always obſerve, namely, that all your motions which are cauſed by the wind, muſt be ſeen to move one way, becauſe the wind can blow but one way at once.

Always expreſs a fair horizon, ſhewing the heavens cloudy or clear, more or leſs according to the occaſion; and if you expreſs the ſun, let it be either riſing or ſetting, and as it were behind or over ſome hill or mountain.

The moon and ſtars are ſeldom or never depicted, unleſs it be in repreſentation of twilight, becauſe all things are ſuppoſed to be ſeen by day.

If you expreſs the ſun, make his light to reflect upon all the trees, hills, mountains, rocks, or buildings; ſhading the contrary ſide; after which manner alſo ſhadow clouds, miſts and the like, making the ſhadows to fall all one way.

In expreſſing things at large diſtances, as ten, twenty or thirty miles off; where the object is hard to be diſcerned, as whether it be temple, caſtle, houſe, or the like, ſhew no particular ſigns thereof, or any eminent diſtinction; but rather as weakly, faintly, and confuſedly as the eye judgeth of it.

If landſkips be laid in colours, the farther you go, the more you muſt lighten it with a thin and airy blue, to make it ſeem as if it were afar off, beginning firſt with a dark green, ſo driving it by degrees into a blue according to the diſtance.

In rivers, obſerve the general current, and daſhing of the waves againſt the boat ſides. In the ſea, obſerve the waves and other proper agitations, the rowling of the billows, the tumbling of veſſels up and down; ſhips floating, ſome dipt, ſome half drowned, ſome ſtanding almoſt on end, ſome hid almoſt with the waves, through the uncertainty of the ſurges, others ſtriving to live. In the motion of waters falling from an high place, but eſpecially when they fall upon rocks or ſtones, you muſt make it leaping up in the air, and ſprinkling all about.

Let your work imitate the ſeaſon you intend it for. Thus, if you intend it for a winter piece, repreſent felling of timber; ſliding upon the ice; fowling by night; hunting of bears or foxes in the ſnow; making the trees every where naked or laden with a hoar froſt; the earth bare, without greenneſs, flowers or cattle; the air thick; water frozen, with carts paſſing over it, and boys upon it, *&c.*

Laſtly, let every ſite have its proper works, adjuncts, or additional graces, as the farm-houſe, windmill, woods, flocks of ſheep, herds of cattle, pilgrims, ruins of temples, caſtles, monuments; with a thouſand ſuch other things, only proper to particular ſubjects.

To take the perfect Draught of any Picture.

TAKE a ſheet of fine *Venice* paper, wet it all over with linſeed oil on one ſide thereof, which then wipe off as clean as you can; let the paper dry, and lay it to any painted or printed picture, then with a black lead pencil you may draw it over with eaſe; put this oiled paper upon a ſheet of clean white paper, and with a little pointed ſtick or feather out of a ſwallow's wing, draw over the ſtroke which you draw upon the oiled paper; ſo ſhall you have the exact form upon the white paper, which may be ſet out with colours with pleaſure.

To make the Shape of a Leaf, Herb, or Plant.

HOLD a whole leaf or ſprig (as of nettles, plantane, *&c.*) in the ſmoak of gum ſandrack, roſin, a link, or wax candle, 'till it is well black'd, which place between the leaves of a ſheet of white paper, and carefully preſs upon the leaf with ſome ſmooth thing; ſo ſhall you have in a moment the print on the paper, eſpecially the backſide thereof, with the very ramifications of the fibres diſperſed through it. This may be of good uſe in travelling, when we meet with ſtrange plants.

Of Colours for Landſkips.

1. FOR a light green, uſe pink, and maſticot heightened with white; for a ſad green, indico and pink, heightened with maſticot.

2. For ſome trees, take lake, umber and white, for others charcoal and white, for others black and white, with ſome green; adding ſome lake, or vermilion, with other colours.

3. For wood, take lake, umber and white, mixing ſometimes a little green withal.

4. For fire, lay red lead and vermillion tempered together where it is reddeſt; where it is blue, lay oil, ſmalt and white lead; where it is yellow, take maſticot, and work it over in certain places; where you would have it ſhine moſt with vermilion.

5. For an azure ſky, which ſeems afar off, take oil, ſmalt, or bice, and temper them with linſeed oil, but grind them hot; for ſmalt or bice utterly loſe their colour in grinding.

6. For a red ſky, take lake and white: and for ſun-beams, or yellow clouds at ſun-riſing or ſetting, take maſticot and white.

7. For a night ſky, or clouds in a ſtorm, take indico deepened with black, and heightened with white.

8. For wood colours, they are compounded either of umber and white, charcoal and white, ſeacoal and white, umber black and white, or with ſome green added; to which you may adjoin ſometimes, as in the barks of trees, a little lake or vermilion.

Of Waſhing, and other Materials thereof.

BY waſhing here we intend nothing more, but either to ſet out maps, or printed pictures in proper colours, or elſe to varniſh them.

The inſtruments and materials of waſhing are ſix. 1 *Alum-water.* 2. *Size* or *Gum-water.* 3. *Liquid gold.* 4. *Pencils.* 5. *Colours.* 6. *Varniſh.*

To make alum-water: Take alum, eight ounces; fair water, a quart; boil them till the alum is diſſolved.

Or thus: take ſpring, or well-water, a gallon; rock alum, a pound, beat it to powder, and diſſolve it in water by boiling; filter it through a brown paper, and keep it for uſe: with this water wet your paper before you lay on your colours, it will keep them from ſinking in, and withal, add a luſtre and beauty to the colours laid on: but this you muſt note, that if your paper is not good, you muſt waſh it over four or five times, which may be done with a large pencil bruſh: moreover, alum generally raiſeth ſtaining colours, and preſerves them from fading.

To make ſize: Take glew, which ſteep all night in water, then melt it over the fire, to ſee that it be neither too ſtrong nor too weak; then let a little of it cool; if it be too ſtiff when it is cold, put more water to it, if too weak more glew, uſing it luke-warm.

To make gum-water: Take pure ſpring water, a quart; put it into a jar glaſs, and hang therein a ſufficient quantity of pure, white and clean gum-arabick, bruiſed and tied up in a rag; let it hang till the gum is diſſolved, then put your fingers into the water, and if you find them ſtick together as if they were glewed, your water is too ſtiff, or full of the gum, which you muſt remedy by putting thereto more fair water; and if you find it too weak, you may help it by adding more gum: with this water, or the former ſize, moſt colours are to be tempered, and with ſo much of the gum-water, as being touched when dry, the colour will not come off: where note, that if the colour gliſten, there is too much gum in it.

Liquid gold and ſilver: Take five or ſix leaves of gold and ſilver, which grind (with a ſtiff gum-lake water, and a good quantity of ſalt) as ſmall as you can; then put it into a vial, or glazed veſſel; add ſo much fair water as may diſſolve the gum-water; then let it ſtand four hours, that the gold may ſettle; decant the water, and put in more till the gold is clean waſhed: to the gold put more fair water, a little ſal-armoniac, and common ſalt, digeſting it cloſe for four days: then put all into a piece of thin glovers leather (whoſe grain is peeled off) and hang it up, ſo will the ſal armoniac fret away and the gold remain behind, which keep.

When you uſe it, temper it with glair of eggs, and ſo uſe it with pen or pencil. Glair of eggs is thus made: take the whites and beat them with a ſpoon, till they riſe all in a foam; then let them ſtand all night, and by morning they will be turned into a clear water, which is good glair.

Of Colours ſimple for waſhing of Maps, &c.

BRAZIL: To ſome ground brazil put ſmall beer and vinegar, of each a ſufficient quantity; let it boil gently a good while, then put therein alum in powder to heighten the colour, and ſome gum arabick to bind it; boil it till it taſte ſtrong on the tongue, and make a good red, pink colour, or light violet.

Logwood: Ground logwood boiled as brazil, makes a very fair tranſparent violet, or purple colour.

Cochineal: Steeped as brazil was boiled, makes a fair, tranſparent purple: as thus, take cochineal, and put it into the ſtrongeſt ſoap-lees to ſteep, and it will be a fair purple, which you may lighten and deepen at pleaſure; infuſed in ſtrong vinegar, it makes a tranſparent purple.

Madder: Take madder, four drams; ground brazil, one ounce; rain-water, a quart; boil away a third part; then add alum, half an ounce, boil it to a pint; then gum arabick, one ounce; which boil till it is diſſolved, cool it, ſtirring it often, and ſtrain it for uſe: It is a good ſcarlet die for leather.

Verdigriſe: Take verdigriſe ground finely one ounce, put to it a good quantity of common varniſh, and ſo much oil of turpentine, as will make it thin enough to work withal; it is a good green. Fine verdigriſe, diſſolved in Rheniſh wine or vinegar, makes a tranſparent green inclining to blue; ground with juice of rue and gum-water, it is a pure green; without the juice, it makes a glorious emerald; mixed with cryſtal of tartar in white wine vinegar, in which gum arabick has been diſſolved, makes a pure green. And verdigriſe, alum, of each one dram; logwood, three drams; boiled in vinegar, make a good murry.

Gambogia: Diſſolve it in fair ſpring-water, and it will make a beautiful and tranſparent yellow; or if you would have it ſtronger, diſſolve ſome alum therein; it is good for ſilk, linen, white-leather, parchment, vellum, paper, quills, *&c.* This colour delights in no mixture.

Turnſole: Put into a ſharp vinegar over a gentle fire till the vinegar boil and is coloured; then take out the turnſole and ſqueeze it into the vinegar, in which diſſolve a little gum arabick; it ſhadows very well on a carnation or yellow.

Flory Blue: Grind it with glair of eggs, if you then add a little roſſel it makes a light violet blue; mixed with white and red-lead, it makes a crane-feather colour.

Indian Lake: Ground with gum-arabick water, makes a glorious murry; in grinding it, add a little ſugar candy; ſome ſay it makes a deep pink of a bloom colour.

Vermillion: Being ground with glair of eggs and honey or gum-water, it makes a deep red, or ſcarlet colour.

Red-lead: Grind it with a ſtiff gum-lake water; if you add ſaffron, it makes an orient, and of a marigold colour; of itſelf it is between a red and an orange colour.

Orpiment: Waſhed and coloured with gum-water, makes an orient or gold colour; there are ſeveral degrees of it, ſome more red, others more yellow.

Indico. Ground and tempered with gum-water, makes a deep blue, and is fit to ſhadow all other blues.

Sap-green. Steep it in ſharp vinegar all night, to which add a little alom to raiſe its colour. In alom-water it makes a good green to ſhadow with.

Ivory Black. Burnt, ground, and tempered with gum-water, makes a good black.

Flake-lead. Ground and tempered with gum-water, is an excellent white.

Spaniſh White. Ground and tempered in like manner with gum-water, makes the beſt of all whites.

Spaniſh Brown. Burnt, ground, and tempered with gum-water, makes a reddiſh brown, or liver-colour.

Umber. Burnt, and ground, and tempered with gum-water, makes a good haw-colour; and is very good to ſhadow with upon gold.

Green of Walnuts. Boiled in water, and ſtrained, and gum-arabick diſſolved in the liquor to bind it, makes an excellent colour to expreſs highways, lanes, *&c.*

Of Compound Colours for waſhing of Maps, &c.

ORange Colours. Red-lead and yellow-berries make a good orange colour: thus, take arnotto half an ounce, pot-aſhes one drachm, water one pound, boil it half away, then ſtrain it, and uſe it hot.

It is good for white leather, paper, vellum, quills, parchment, *&c.*

Green. Take diſtilled vinegar, filings of copper, digeſt till the vinegar is blue, which let ſtand in the ſun or on a ſlow fire till it is thick enough, and it will be a good green.

Or thus: Take cedar green (which is beſt of all) or inſtead thereof green bice, ſteep it in vinegar and ſtrain it; then grind it well with fair water, and put to it a little honey, and dry it well; when you uſe it, mix it with gum-water.

To make fine Indico. Take of the bloſſoms of oad three ounces, amylum one ounce, grind them with urine and ſtrong vinegar, of which make a cake, then dry it in the ſun, and ſo keep it for uſe.

A Blue to waſh upon Paper. Take of the beſt azure an ounce, kermes two ounces, mix them, which temper with clear gum-water, and it will be a glorious colour.

To make a Venice Blue. Take quick lime, make it into paſte with ſtrong vinegar, half an hour after put thereto more vinegar to ſoften it; then add indico in fine powder one ounce, mix them, and digeſt it in horſe-dung for 30 or 40 days.

Another excellent Blue. Mix fine white chalk with juice of elder-berries full ripe, to which put a little alom-water.

To make blue Smalt. Take fluxible ſand, ſal-nitre and cobalt, mix them together.

A lively Yellow. Diſſolve orpiment in gum-water, to which put a little ground vermillion, grind them together, and you ſhall have a very lively colour.

A light green. Take juice of rue, verdigriſe and ſaffron, grind them well together and uſe them with gum-water.

Or thus: Take ſap-green, flower-de-luce, or tawny green, which ſteep in water. Verditure and ceruſe, mixed with a little copper green, make a good light colour.

Blue. Ultramarine, blue bice, ſmalt, and verditure, ground ſingly with gum-water, or together, make a good blue.

Brown. Ceruſe, red lead, *Engliſh* oker, and pink, make a good brown.

Spaniſh Brown. To colour any horſe, dog, or the like, you muſt not calcine it; (yet not calcined it is a dirty colour) but to ſhadow vermillion, or lay upon any dark ground, behind a picture, to ſhade berries in the darkeſt places, or to colour wooden poſts, wainſcot, bodies of trees and the like, it is very good, (being burnt).

Fleſh Colour. Mix white, Indian lake, and red-lead (according as you would have it light or deep) and to diſtinguiſh a man's fleſh from a woman's, mingle it with a little oker.

Colour of Stones. Verdigriſe with varniſh makes an emerald; with *Florence* lake, a ruby; with ultramarine, a ſapphire.

A never-fading Green. Take juice of flowers of flower-de-luce, put into gum-water, and dry it in the ſun.

Of mixing Colours and Shadowing.

IN mixing be careful not to make the colour too ſad, nor take the pencils out of one colour and put them into another.

In mixing colours, ſtir them well about the water ſeverally till they are well mixed; then put them together, making the colour ſadder or lighter at pleaſure.

Green is ſhadowed with indico and yellow-berries.

Blue is ſhadowed with indico, litmoſe and flory; or any of them being ſteeped in ſoap-aſhes, and uſed with gum-water.

Garments are ſhadowed with their own proper colours; or you may mingle the colours with white (for the light) and ſhadow it with the ſame colour unmingled; or you may take the thinneſt of the colour for the light, and ſhadow with the thickeſt or bottom of the ſame.

Sap-green is only uſed to ſhadow other greens with, and not to be laid for a ground in any garment.

Lake ought not to be ſhadowed with any colour, for it is a dark red; but for a variety you may ſhadow it with bice, or blue verditure, which will make it like changeable taffata.

The ſhadow for *yellow-berries* is umber; but for beauty's ſake with red-lead, and the darkeſt touches with *Spaniſh* brown; and for variety with copper-green, blue bice or verditure.

White ſets off *blues* and *blacks* very well; *red* ſets off well with yellow; yellows with reds; ſad blues, browns, greens, and purples.

Blues ſet off well with yellows, reds, whites, browns and blacks; and *green* ſet off well with purples, and reds.

A Compound Green. Mix verdigriſe water with yellow-berry water; it will be tranſparent, and you may make it deeper or lighter according to the proportion that you take of either.

A Compound Blue Colour. Mix litmoſe water with yellow-berry water, and you will have a tranſparent ſad blue, which you may heighten or deepen as the former at pleaſure.

A Compound Orange Colour. It is made by mixing braſil water with yellow-berry water of a tranſparent colour.

Of Colours for waſhing Landſkips.

GREEN mixed with white, pink, bice, maſticot, ſmalt, indico, or ceruſe: or blue verditure mixed with a few yellow-berries makes a good green for landſkips.

For the *ſaddeſt hills*, uſe umber burnt; for the *lighteſt places*, put yellow to the burnt umber; for *other hills*, lay copper-green thickened on the fire, or in the ſun; for the next *hills farther off*, mix yellow-berries with copper-green; let the fourth part be done with green verditure; and the *fartheſt and fainteſt places* with blue bice, or blue verditure, mingled with white, and ſhadowed with blue verditure, in the ſhadows indifferent thick.

Let the *highways* be done with white and red lead, and for variety yellow oker; ſhadow it with burnt umber, which you may uſe for ſandy rocks and hills.

Rocks may be done with ſeveral colours, in ſome places black and white, in other places red and white, and others blue and white, and the like as you ſee convenient.

The water muſt be black verditure and white, ſhadowed with green and blue verditure, when the banks caſt a green ſhadow upon the water, and the water is black ſhadowed, then ſhade it with indico, green thickened, and blue verditure.

Colour *buildings* with as much variety of pleaſant colours as may be imaginable, yet let reaſon be your rule in mixing your colours: you may ſometimes uſe white and black for the *wall conduits*, or other things. For *brick houſes* and the like, red lead and white; if *many houſes* ſtand together, ſet them off with variety of colours, as umber and white; lake and white; red-lead and white, and the like.

Laſtly, *for the ſky*, uſe maſticot, or yellow-berries, and white for the *lighteſt and loweſt places;* red roſſet, and white for the *next degree;* blue bice, and white for *the other;* blue bice, or blue for *the higheſt*.

Theſe degrees and colours muſt be ſo wrought together, that the edge of each colour may not receive any ſharpneſs; that is, ſo as that you cannot perceive where you began to lay them, being ſo drowned one in another.

Of the Practice of Waſhing.

WITH the *alom-water* wet over the picture to be coloured, for that keeps the colours from ſinking into the paper, and will add a luſtre unto them, make them ſhew fairer, and keep them from fading.

Then let the paper dry of itſelf (being waſhed with *alom-water*) before you lay on the colour; or before you wet it again, for ſome paper will need wetting four or five times.

The waſhing of the paper muſt be done with a large pencil bruſh.

But if you intend to varniſh your pictures after you have coloured them, inſtead of waſhing them with alom-water, firſt ſize them with new ſize made of good white ſtarch, with a very fine bruſh; and this you muſt be ſure to do all over, for elſe the varniſh will ſink through.

Having thus prepared your work, go to laying on your colours according to your former directions, ſuiting them as near as may be to the life of every thing.

How to lay on your Colours.

FIRST provide yourſelf of pencils of ſeveral ſizes, and if you will be curious, you ought to have a great and a ſmall to each reſpective colour; if not, you muſt always have by you a diſh of fair water, in which you muſt waſh and cleanſe your pencil, wiping it with a clean linen cloth, before you put it into another colour.

For your pencils chuſe thoſe that are good, thus: ſee that they be fulleſt next the quill, deſcending or leſſening into a ſmall room or ſharp point, which you may ſee by putting the hair into your mouth, and drawing it through your lips once or twice, then you ſee what it is, and if you find any ſtraggling hairs, ſinge them off with the flame of a candle.

Being thus provided with colours and pencils, if you deſign to lay any colour about the edges of any map, part, piece, or diviſion of ground, in a plat; as ſuppoſe you would incloſe a particular field, or cloſe in a meadow, with yellow; with your pencil take camboge, or yellow-berry water a very ſmall quantity, and on the inſide of the black lead line draw the colour along of an equal breadth (as near as you can) from the line, broader or narrower as your field is in bigneſs; not daubing the field or cloſe all over with the colour, which would be but an abuſe to your map or plat.

Then having gone round the cloſe or field in this manner, with your colour, wet your pencil in your mouth, or have by you a ſmall quantity of water to dip it in, and ſtrike along the inſide of the coloured line, bringing it more down towards the center of the field; and this will ſweeten your colour, and make it ſhew as if it loſt itſelf by degrees, to the very colour of your paper or parchment. This courſe is to be taken not only for yellows, but for all other colours. Laſtly, with a pen (if you cannot do it handſomely with a pencil) take ſome of the colour which ſhadows the colour you have already uſed about the field, and go over your black-lead only, ſo ſhall your field be finiſhed.

Laſtly, after the ſame manner you may adorn all the parts in your plat or map, of divers colours.

FINIS.

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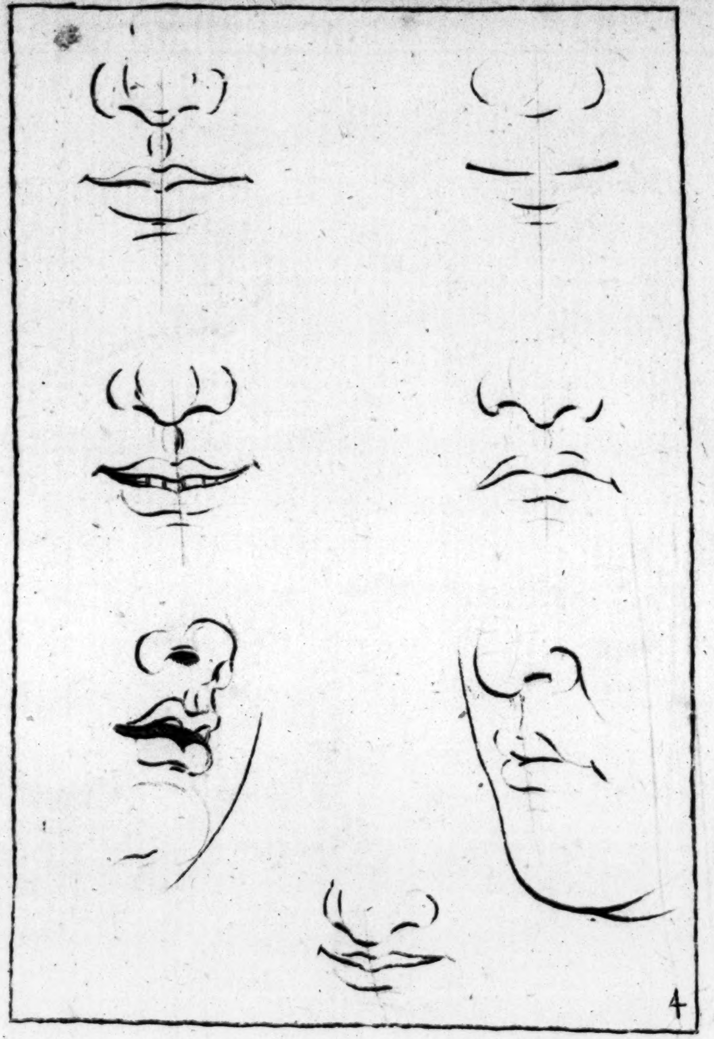

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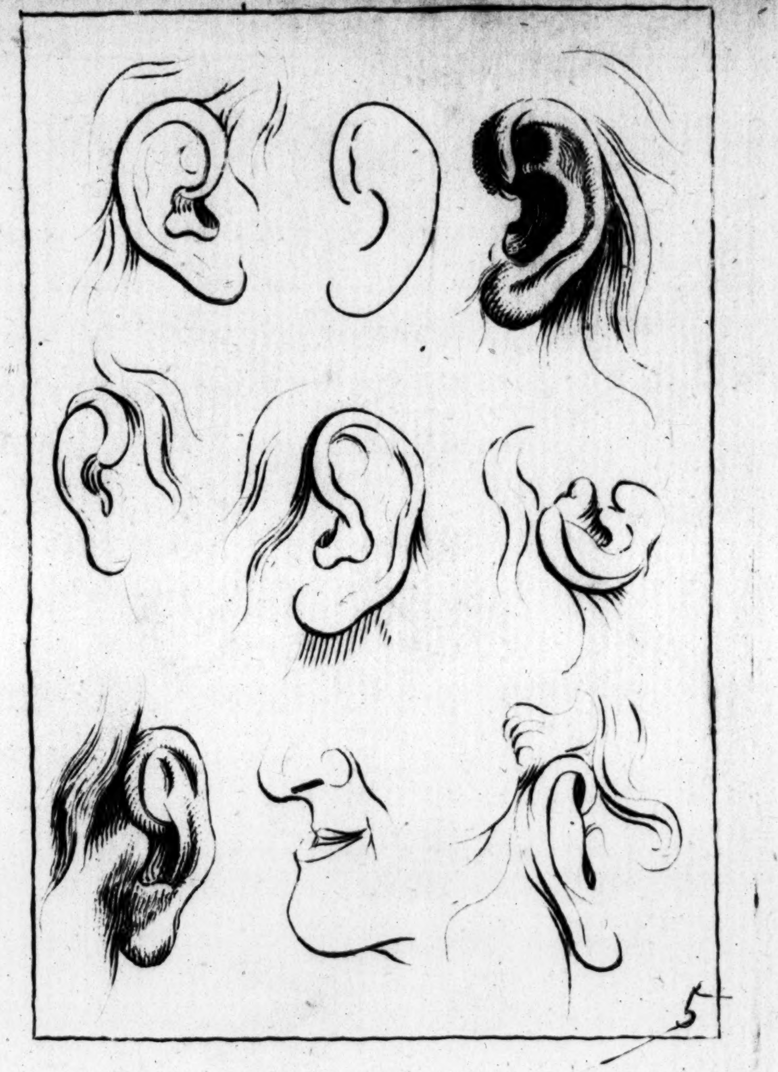

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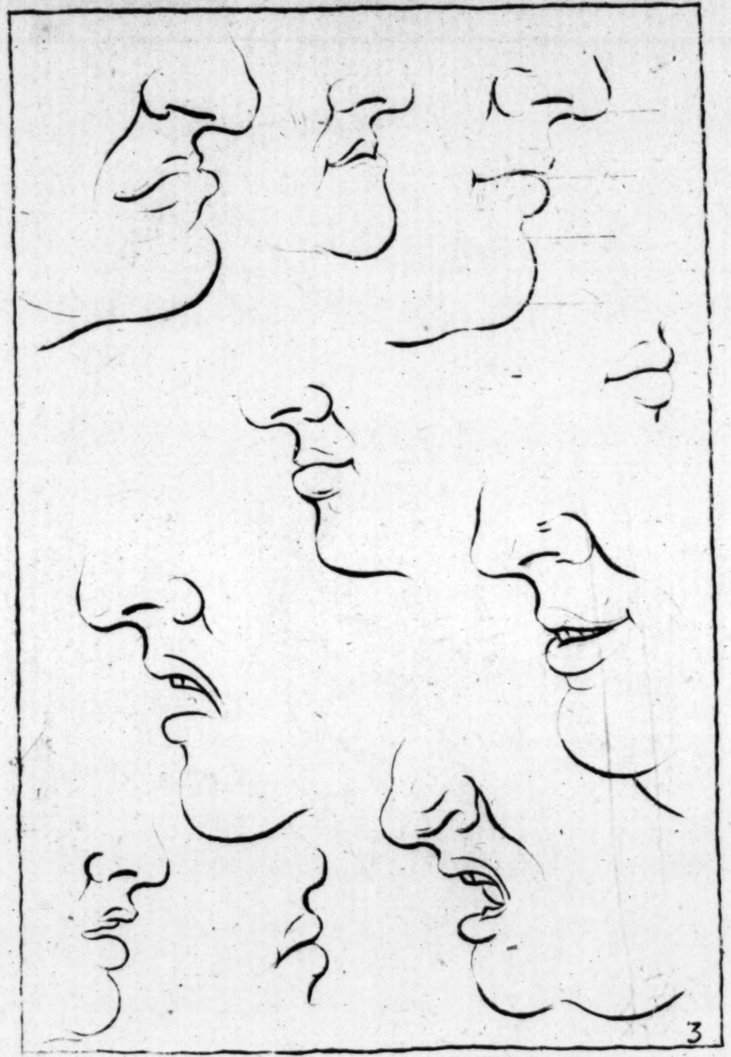

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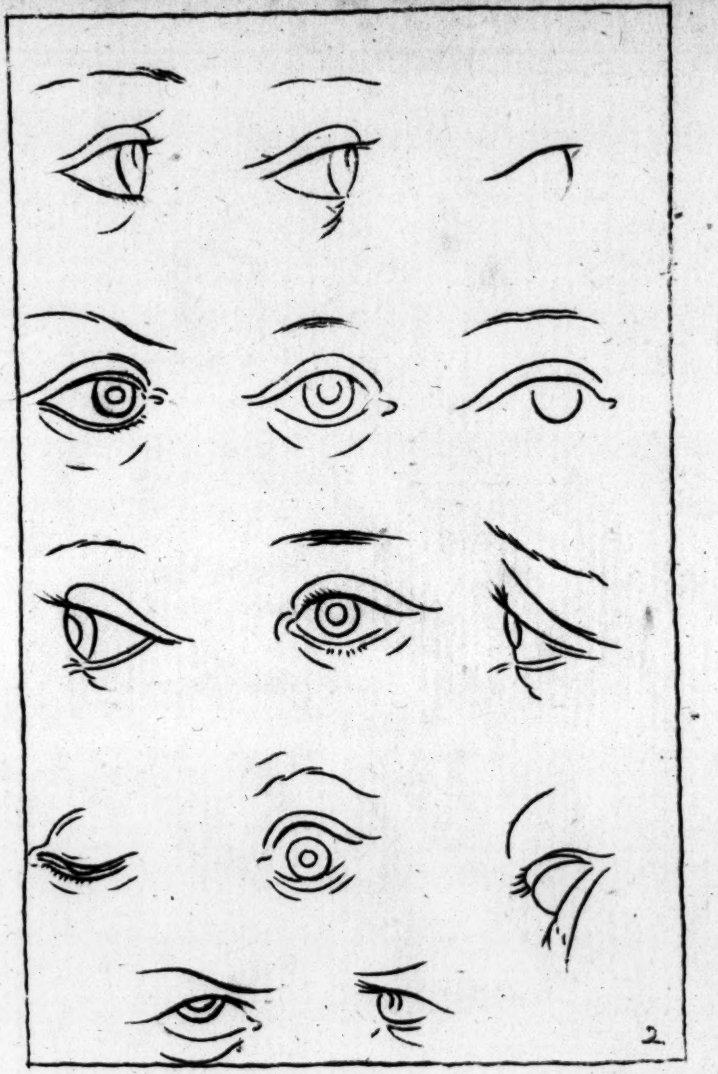

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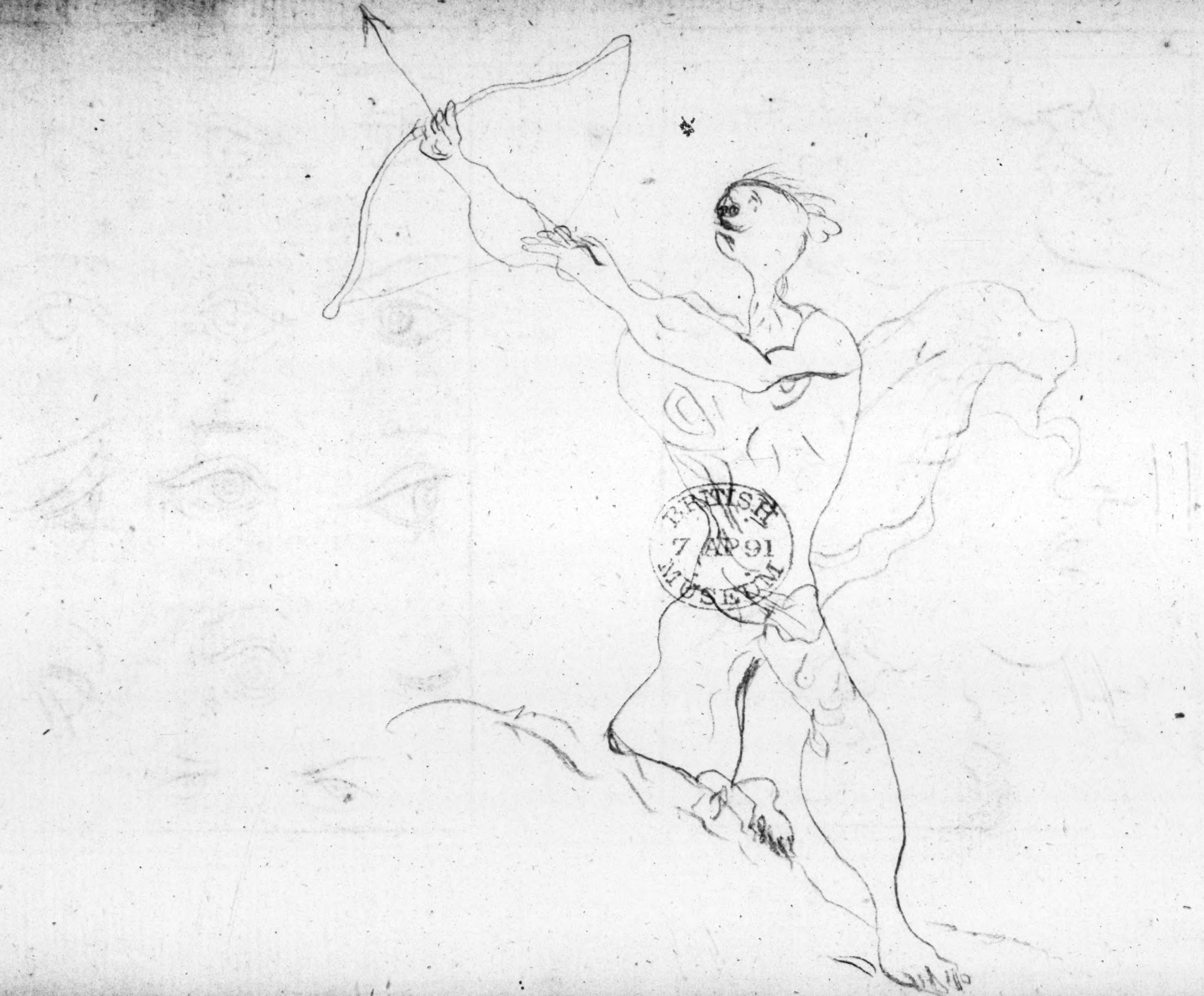

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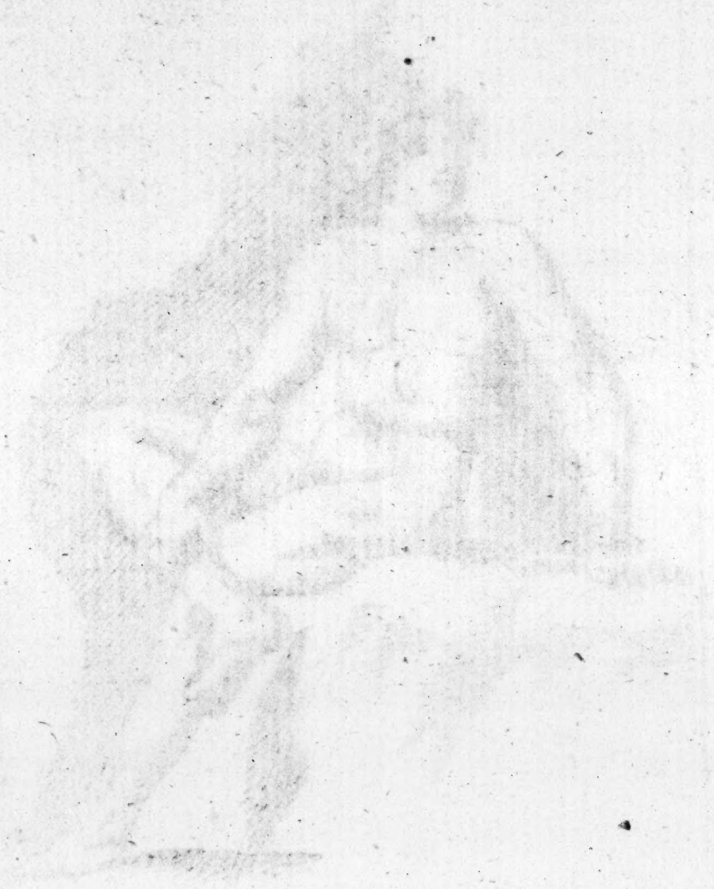

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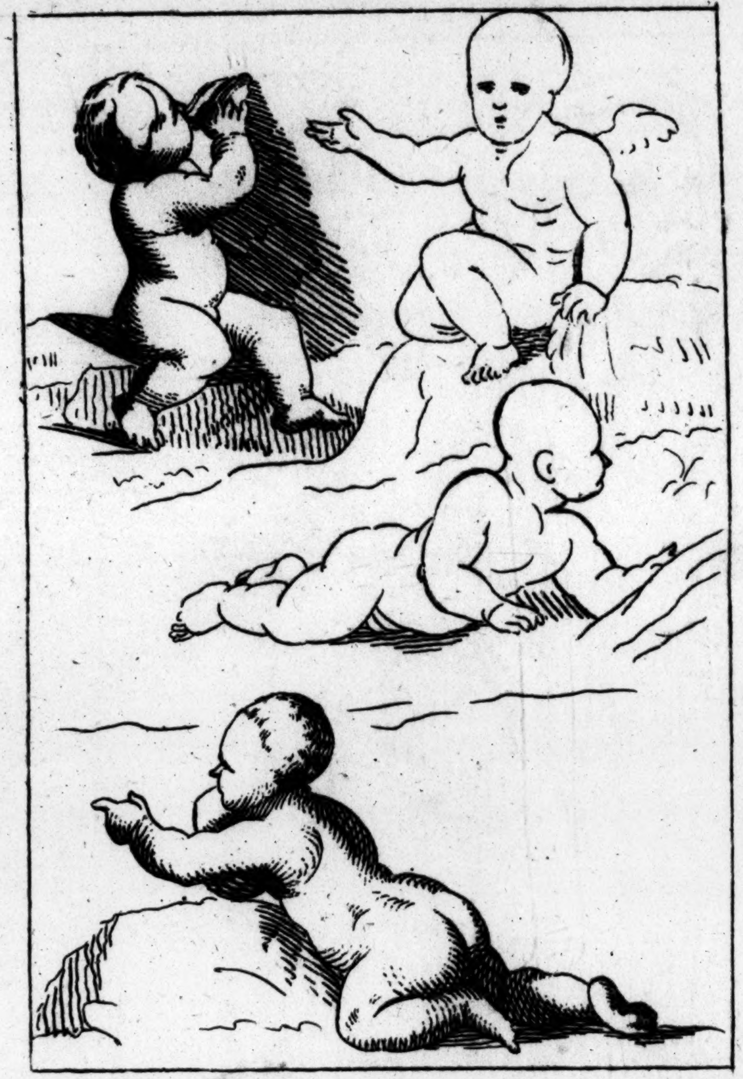

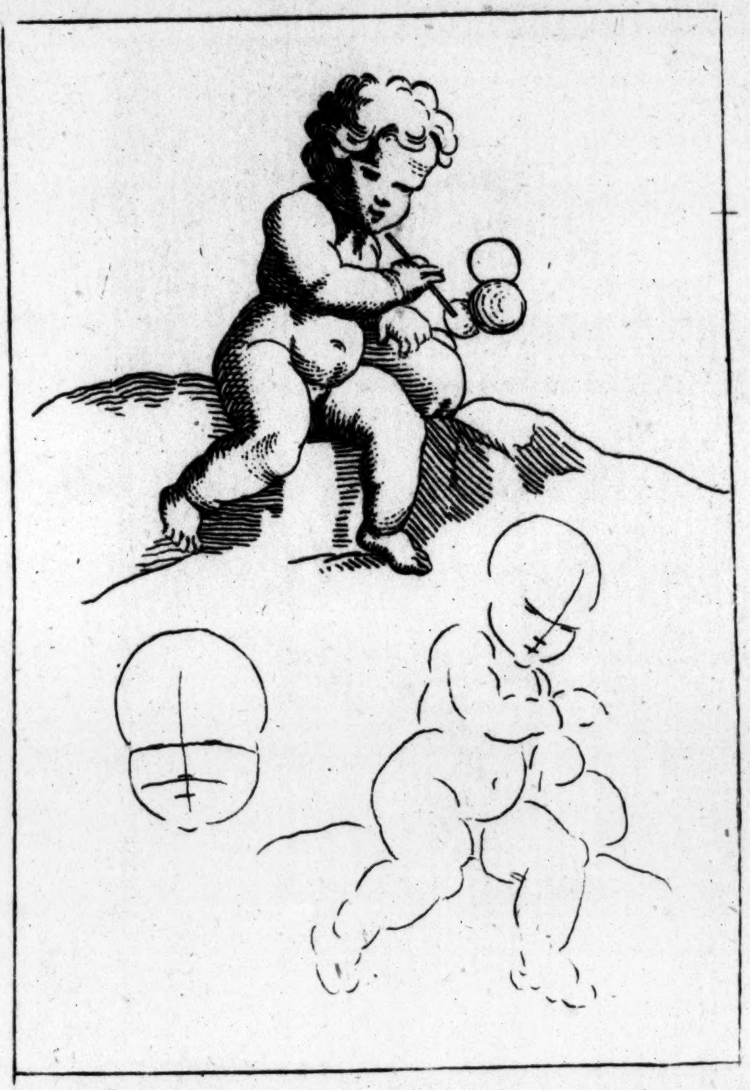

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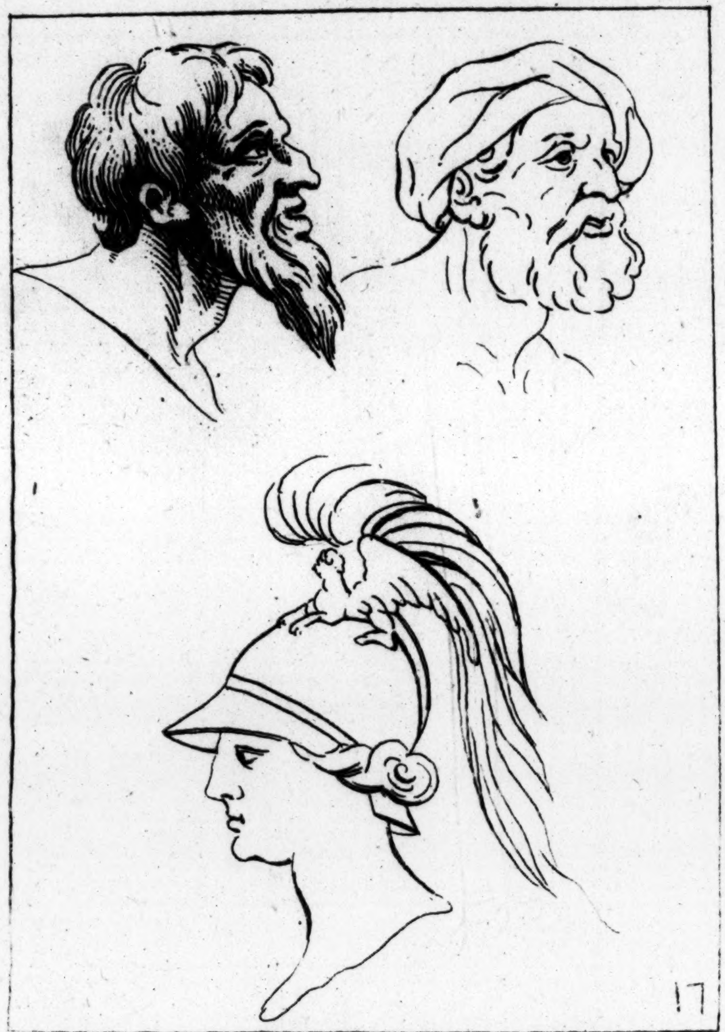

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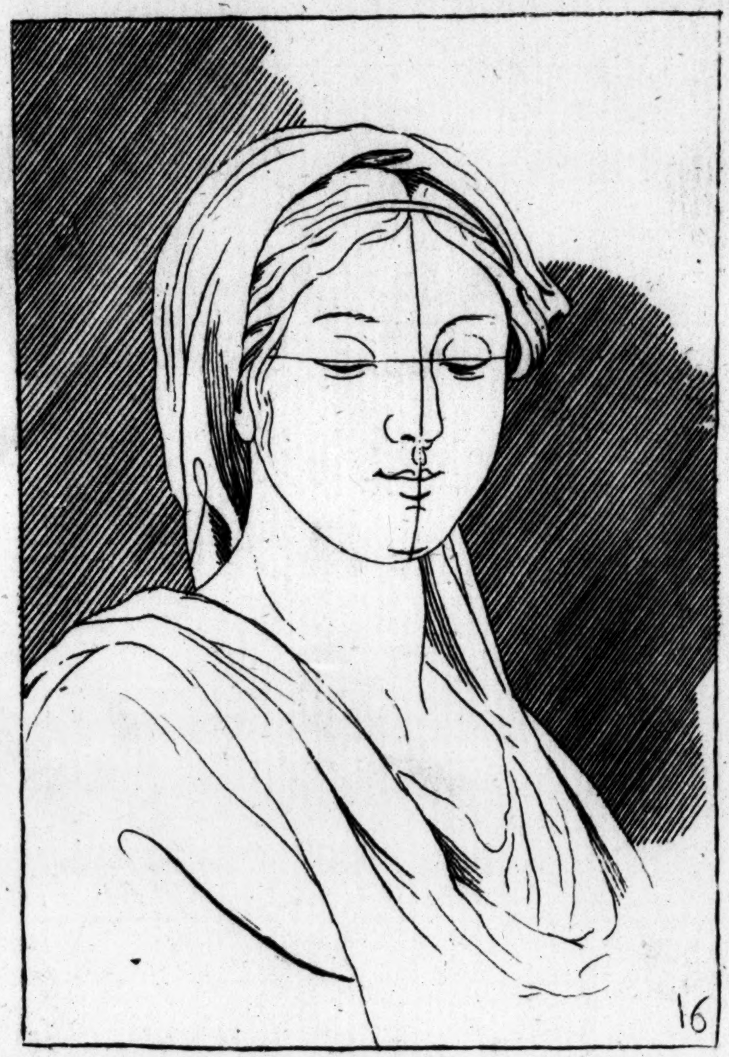

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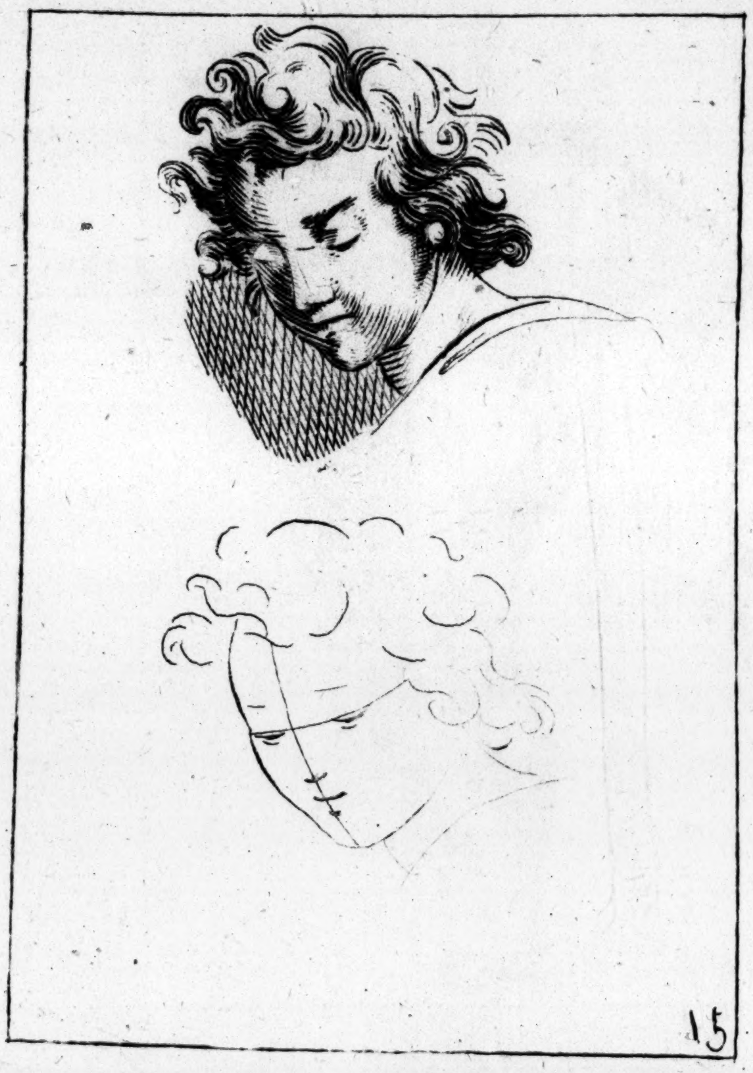

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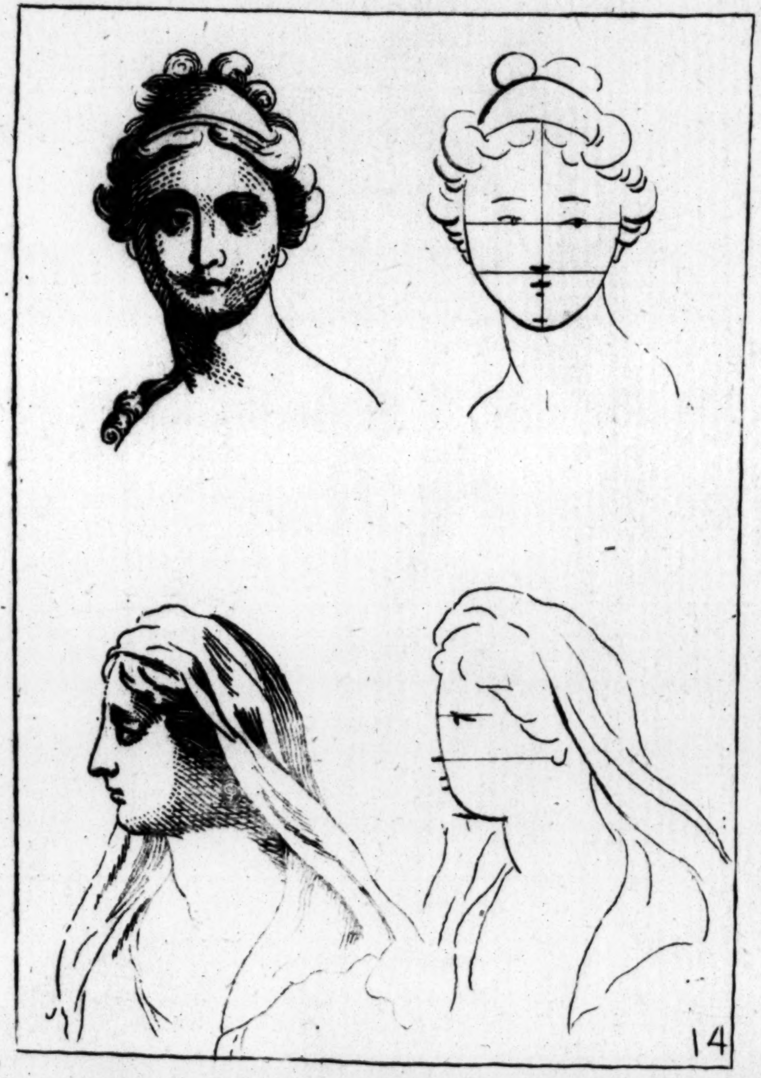

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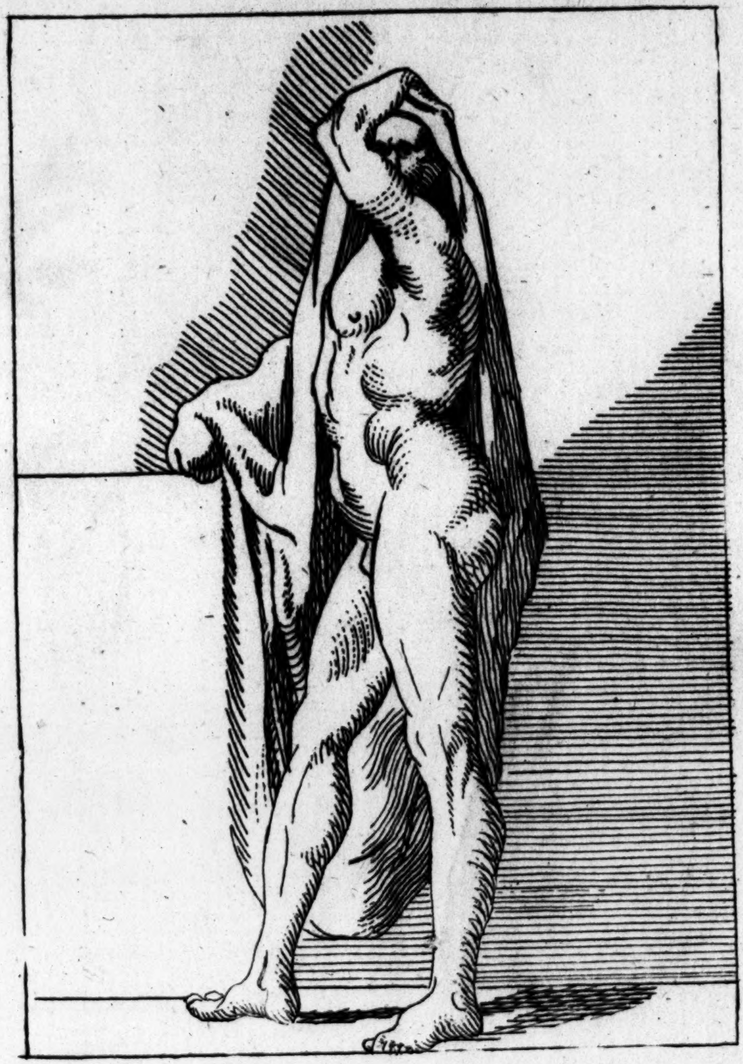

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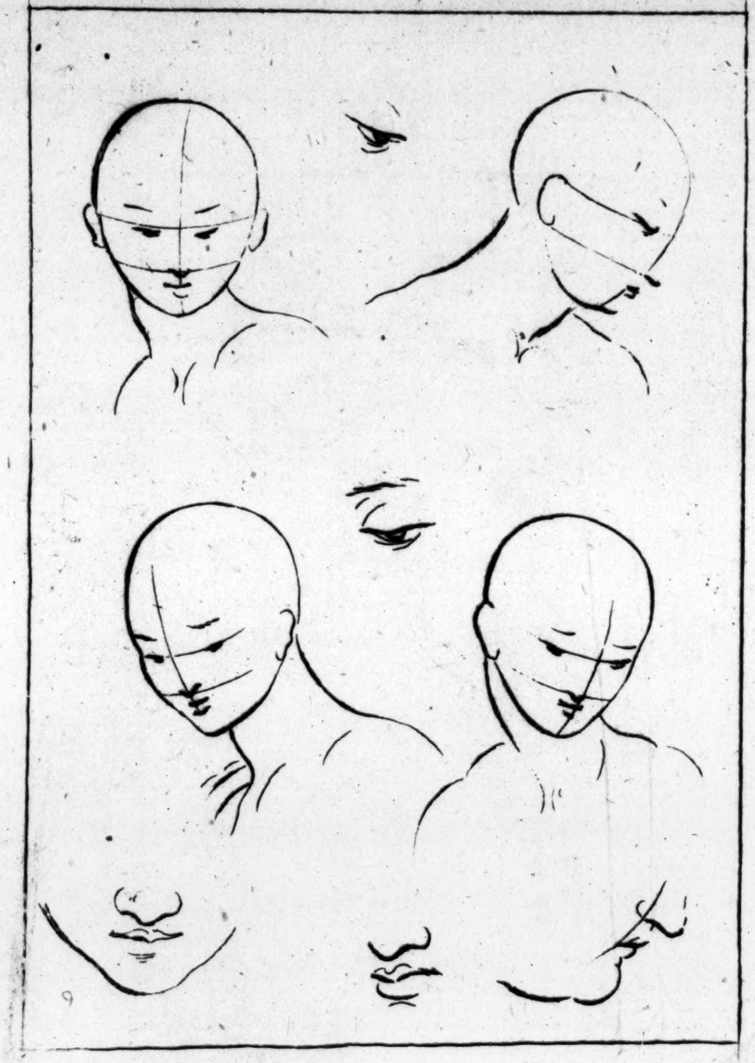

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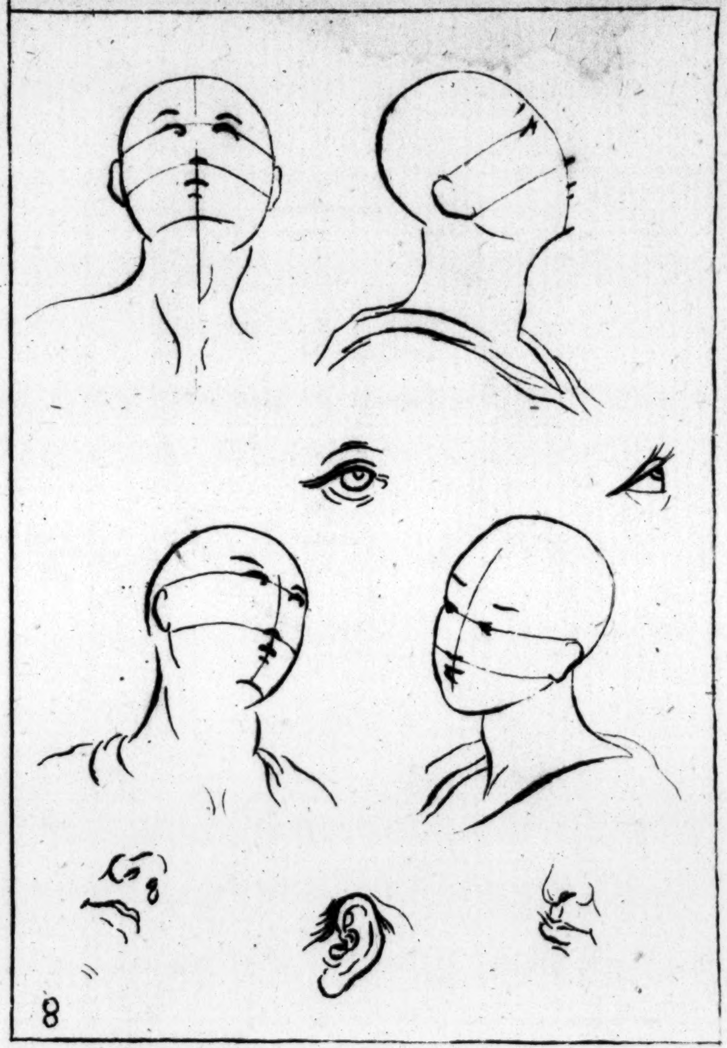

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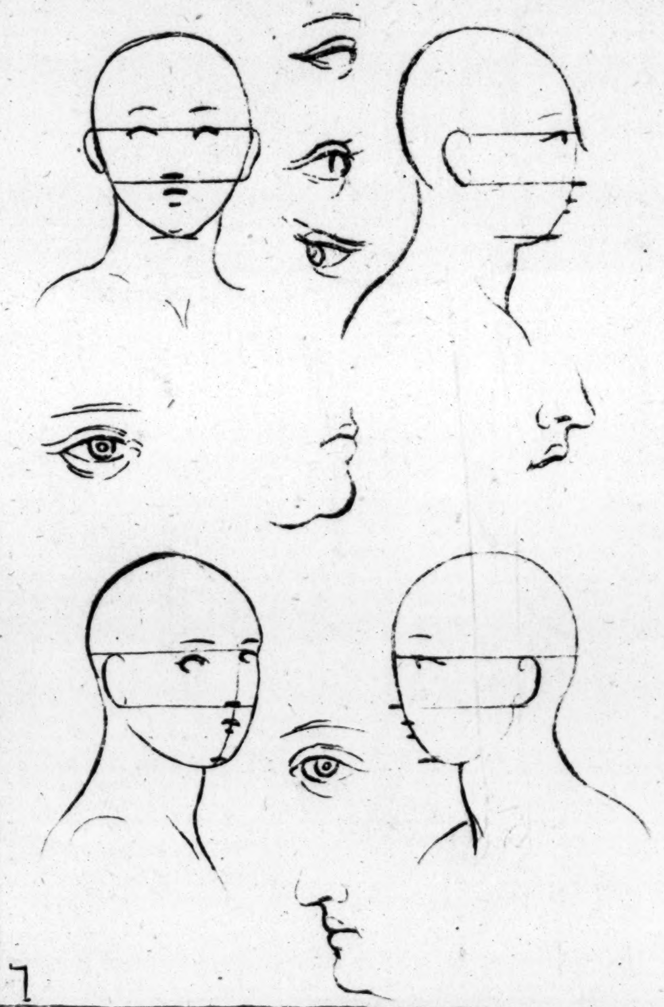

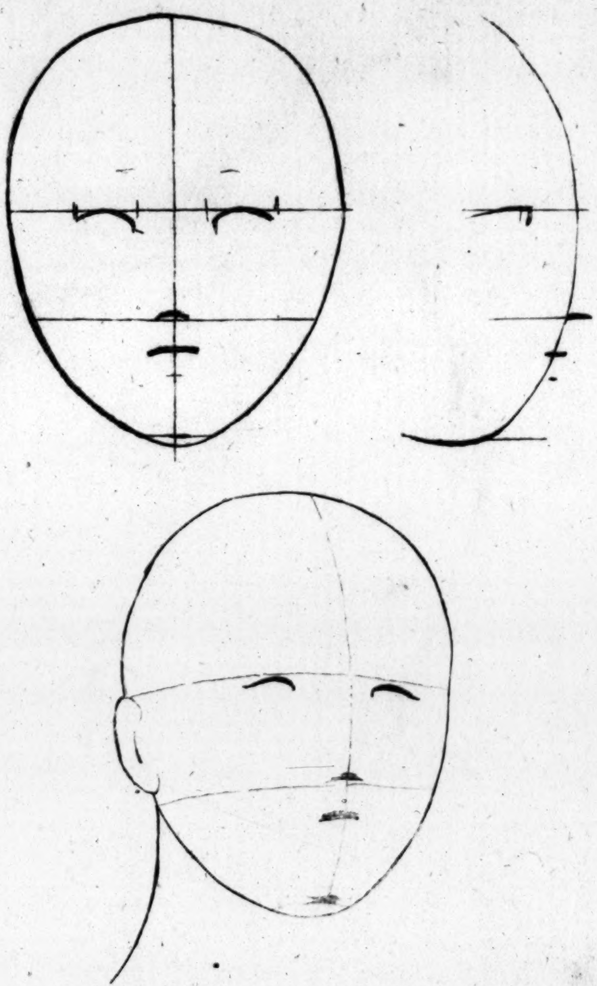

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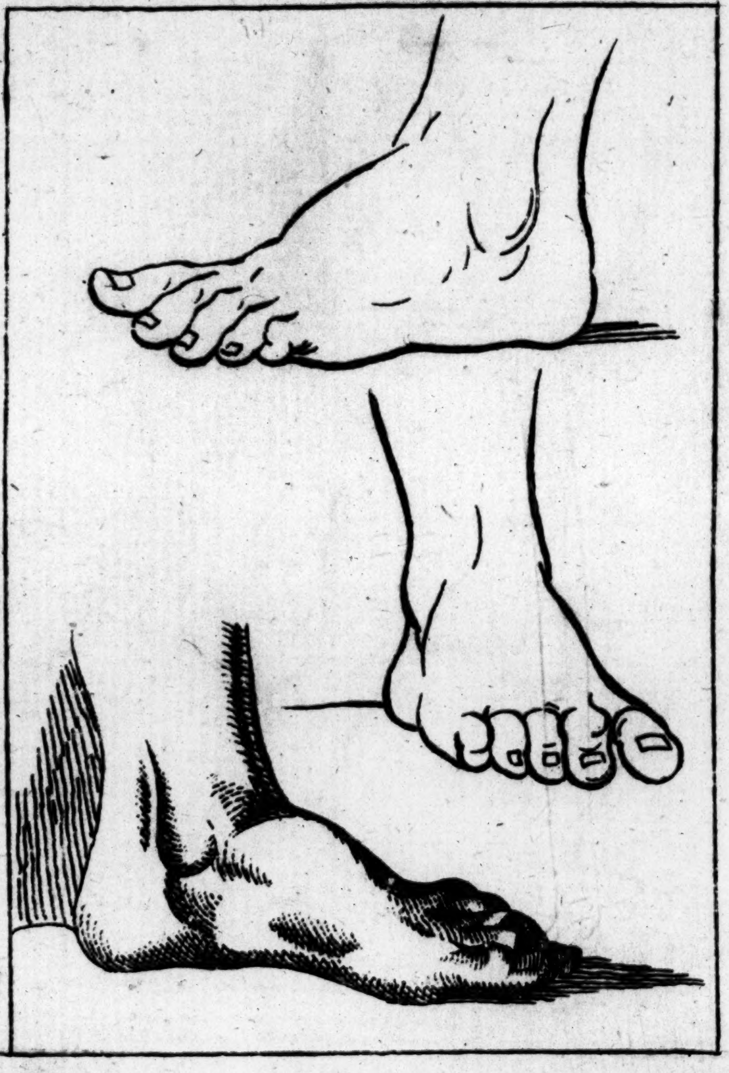

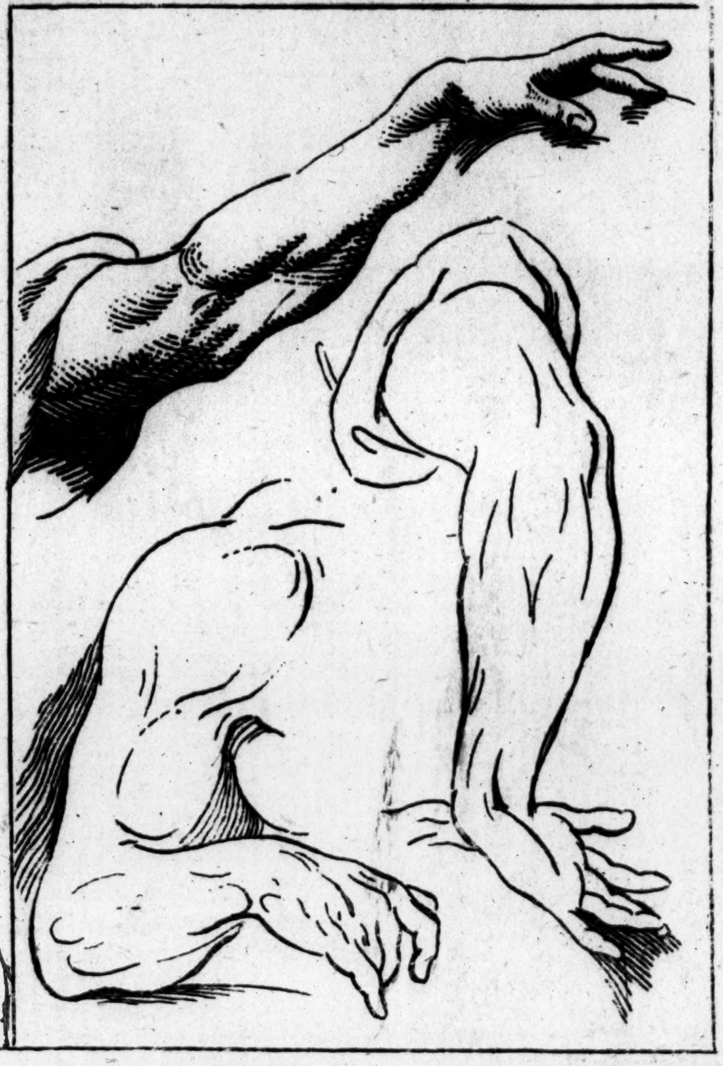

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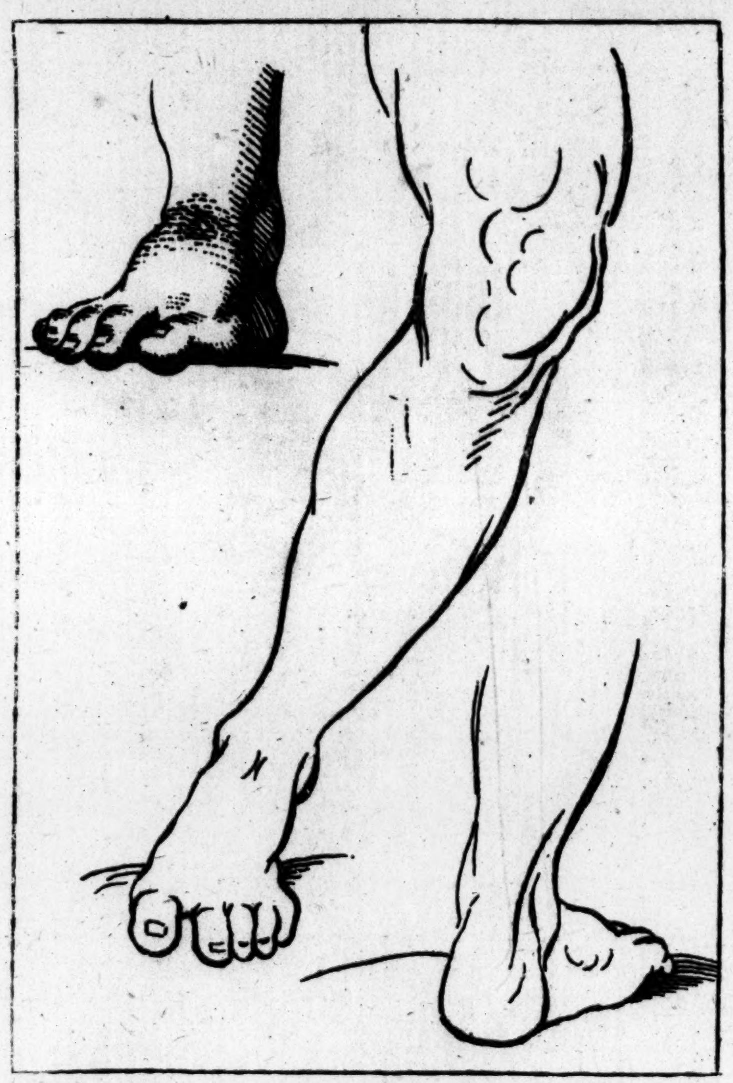

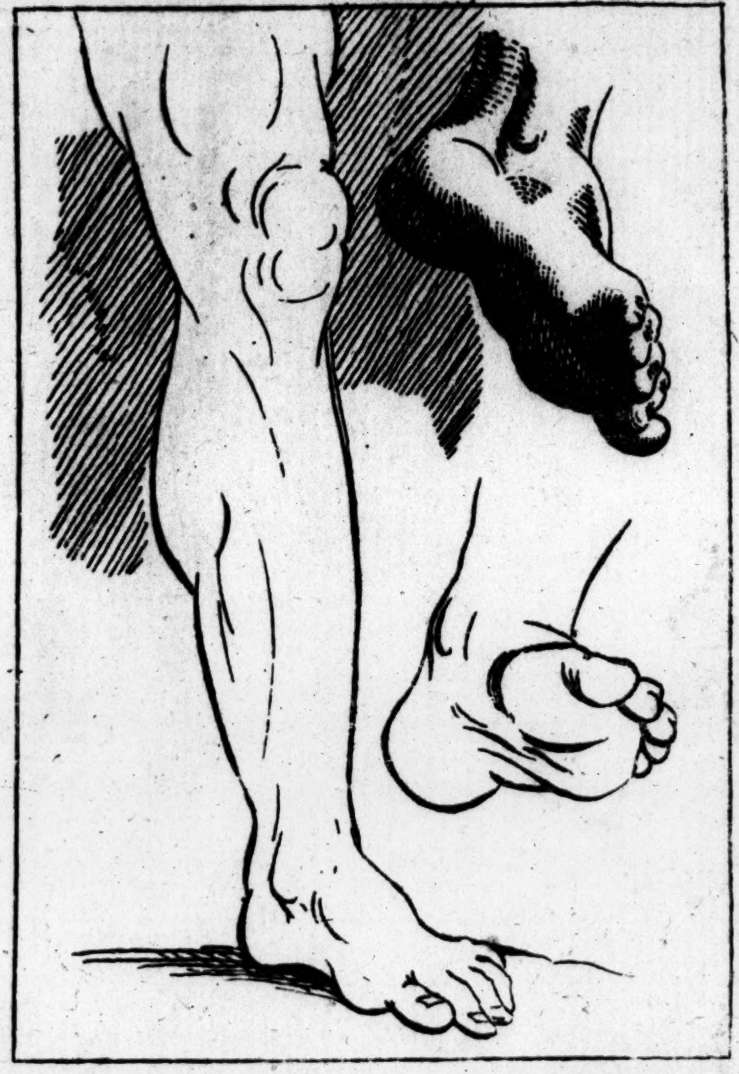

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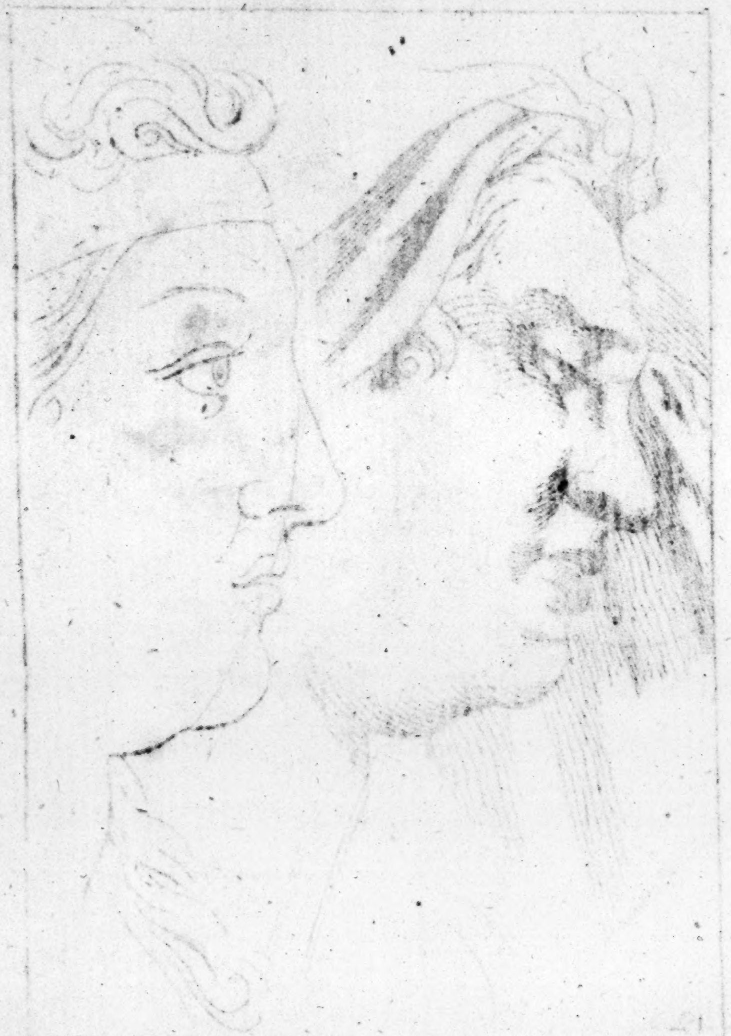

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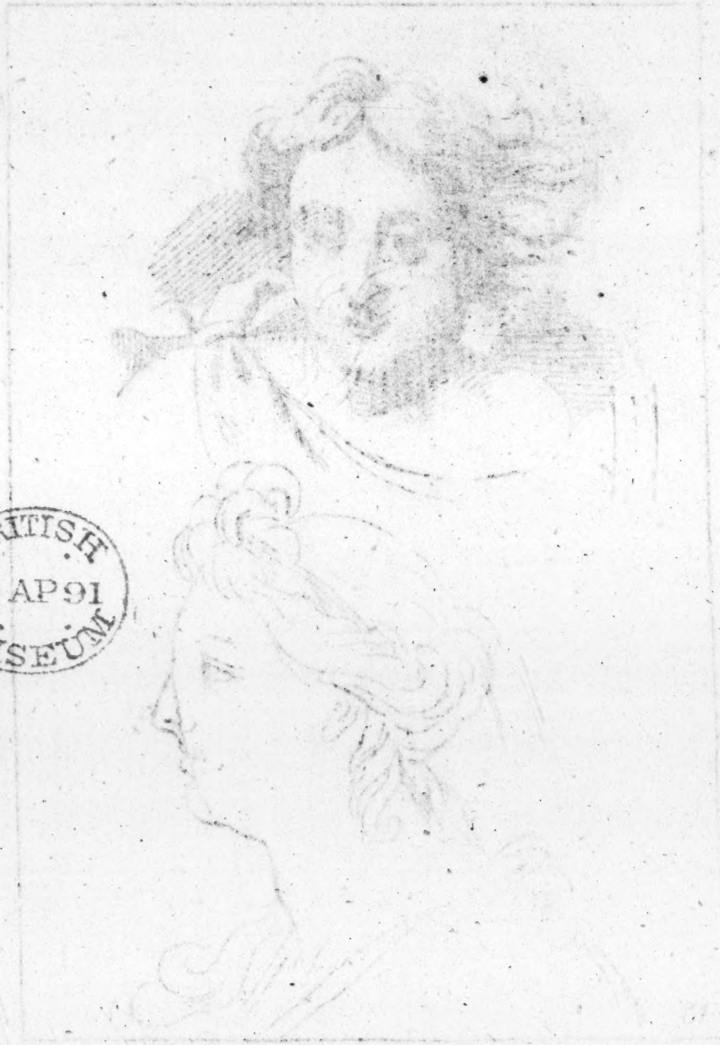

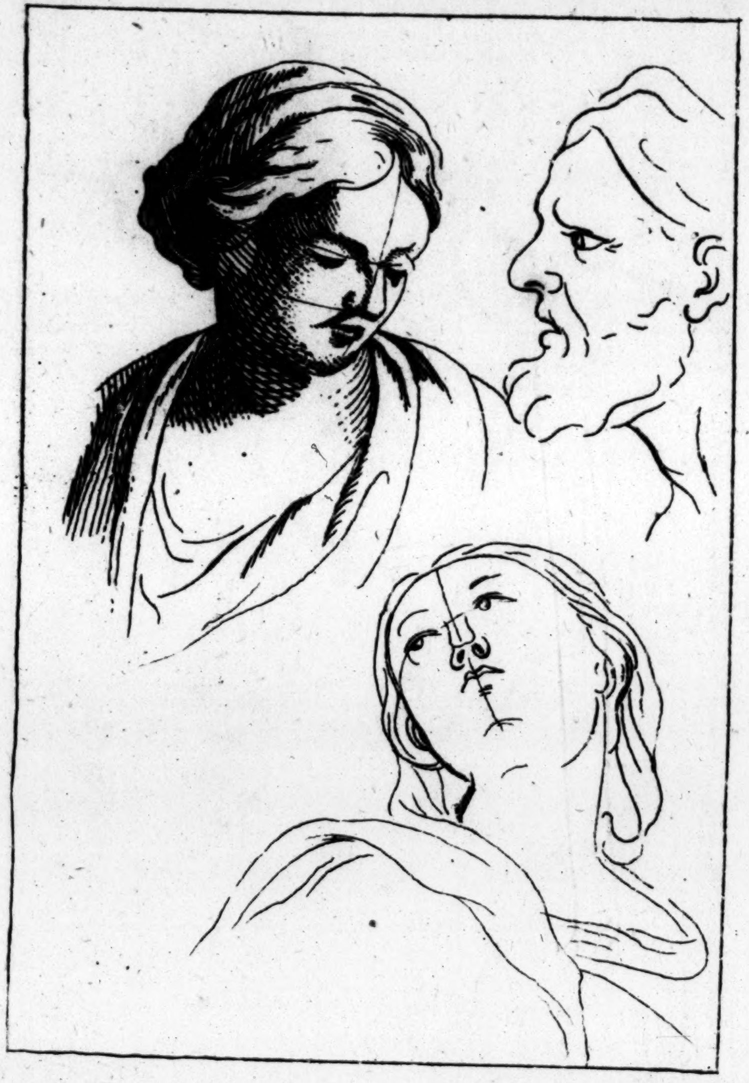

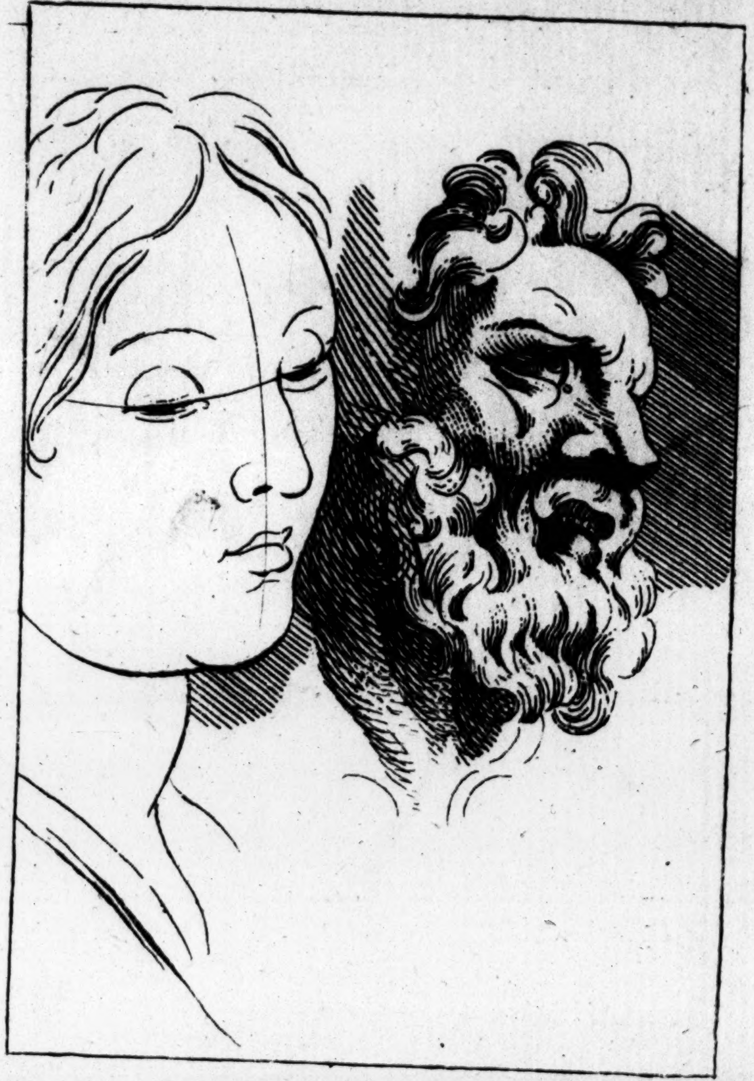

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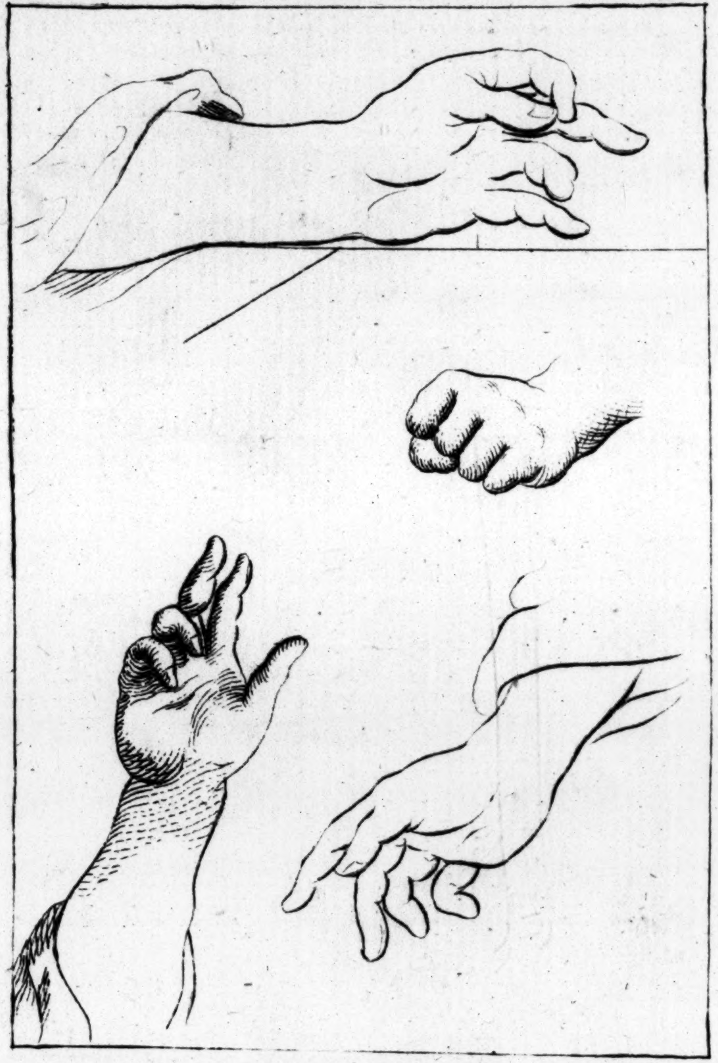

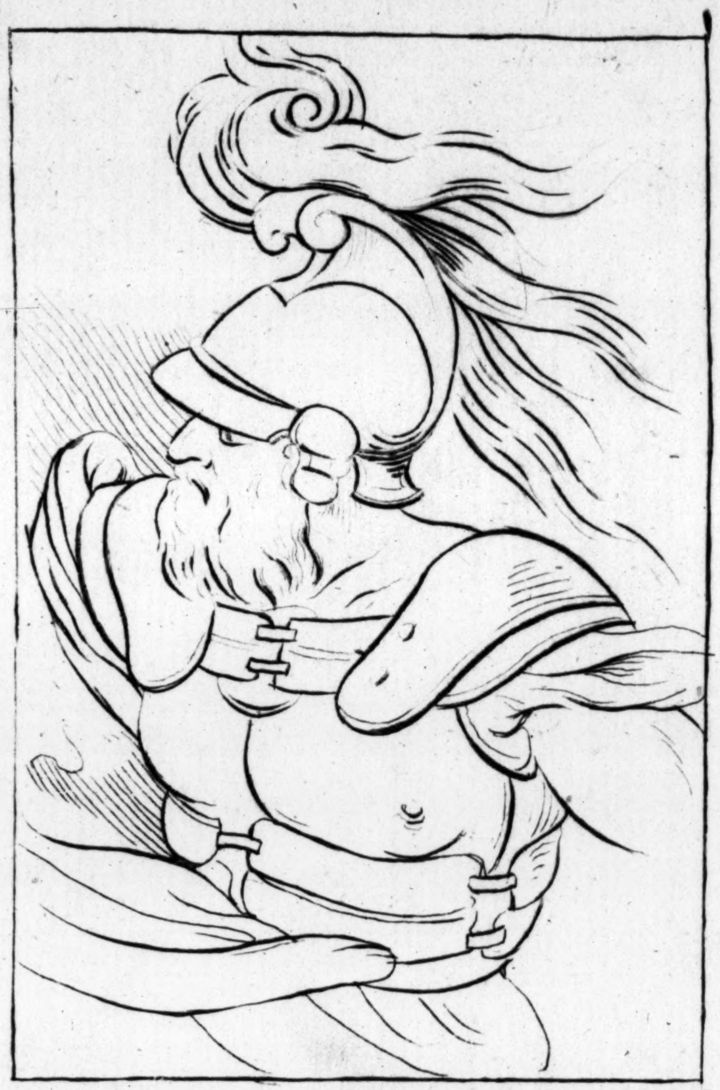

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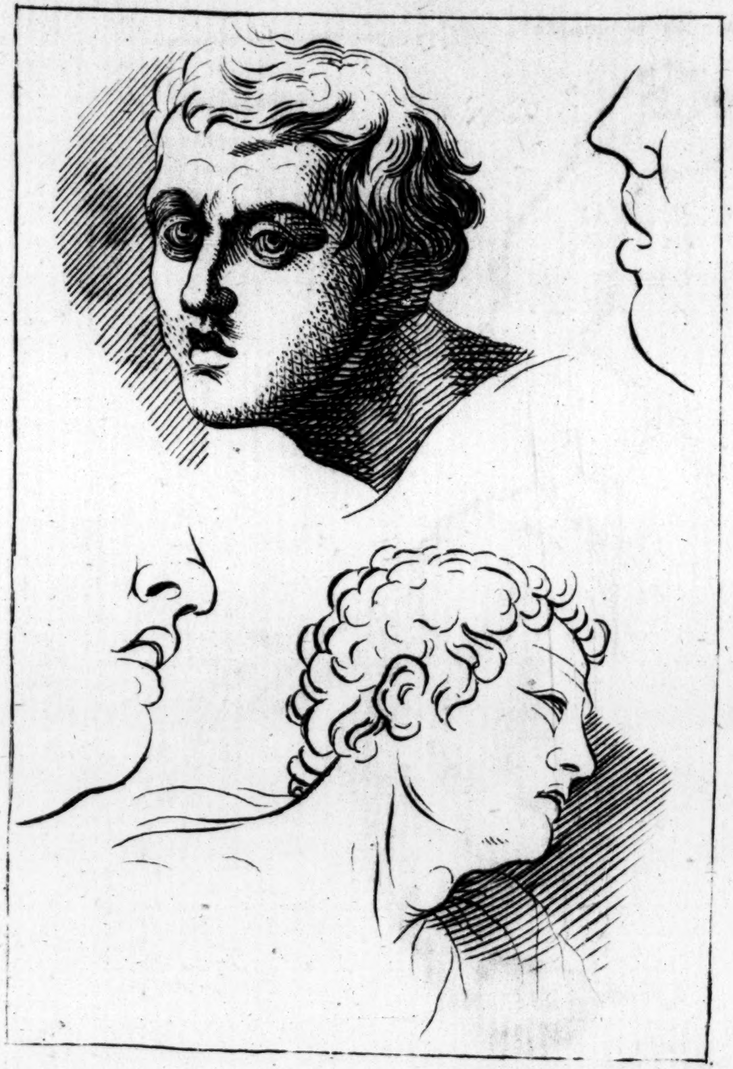

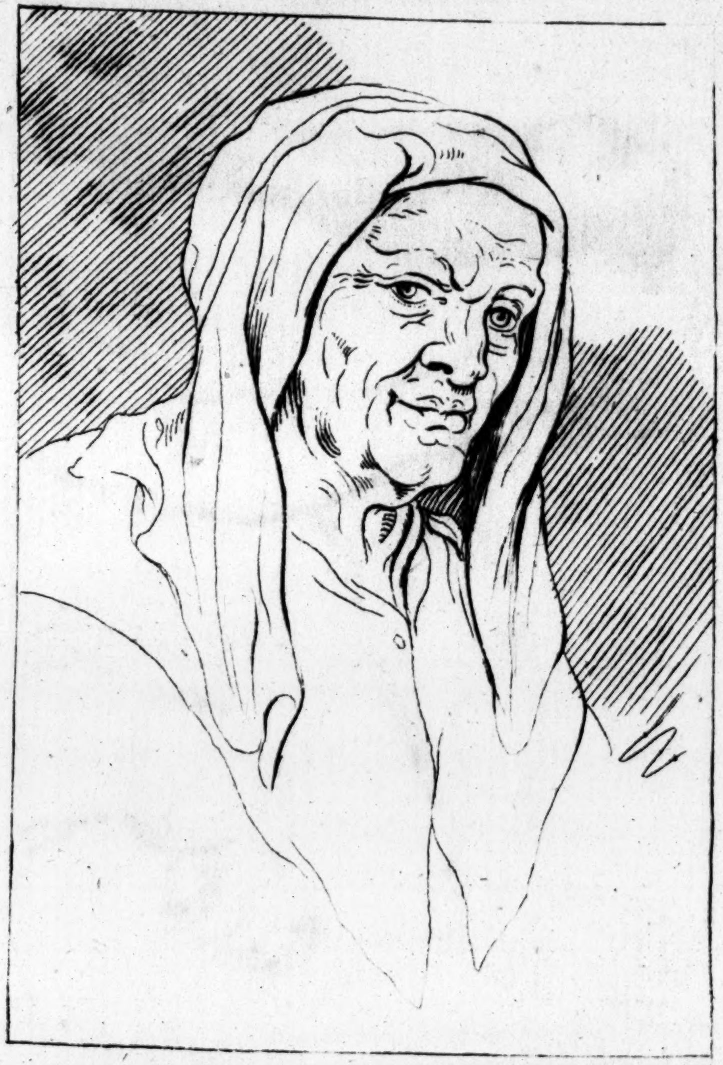

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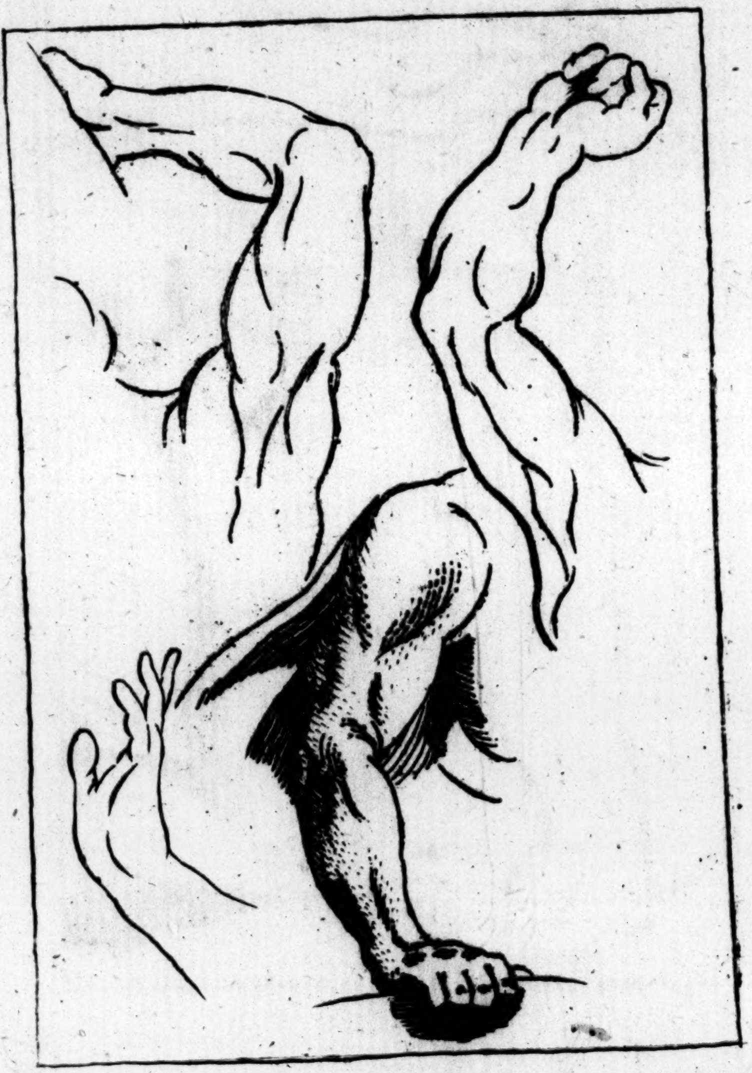

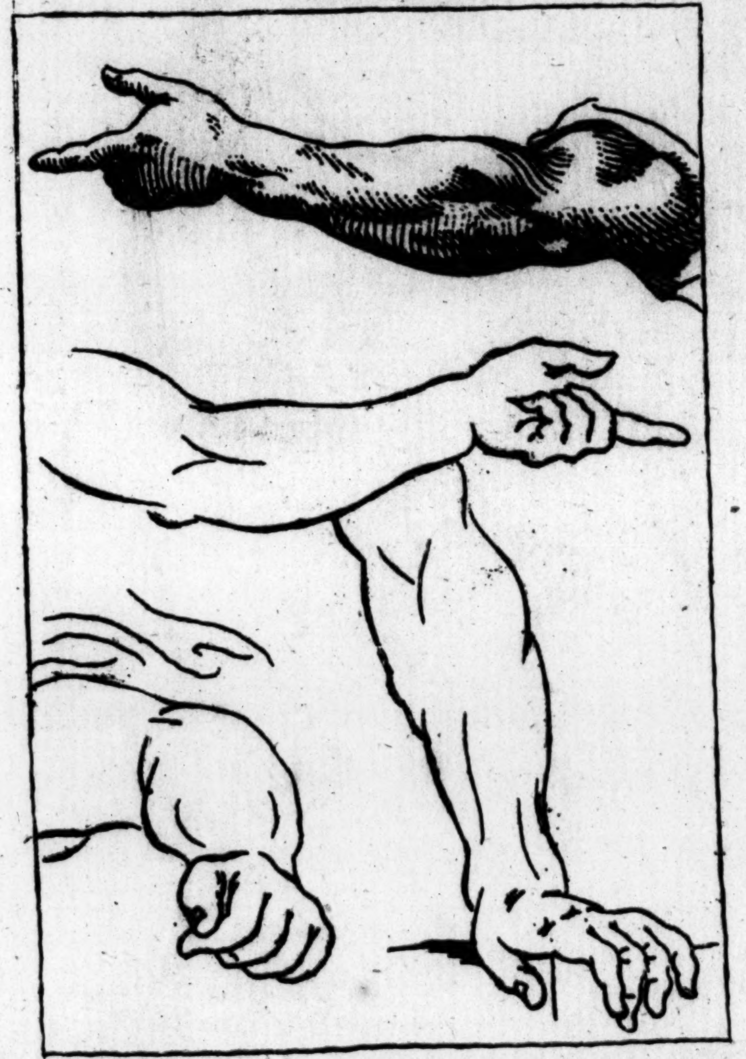

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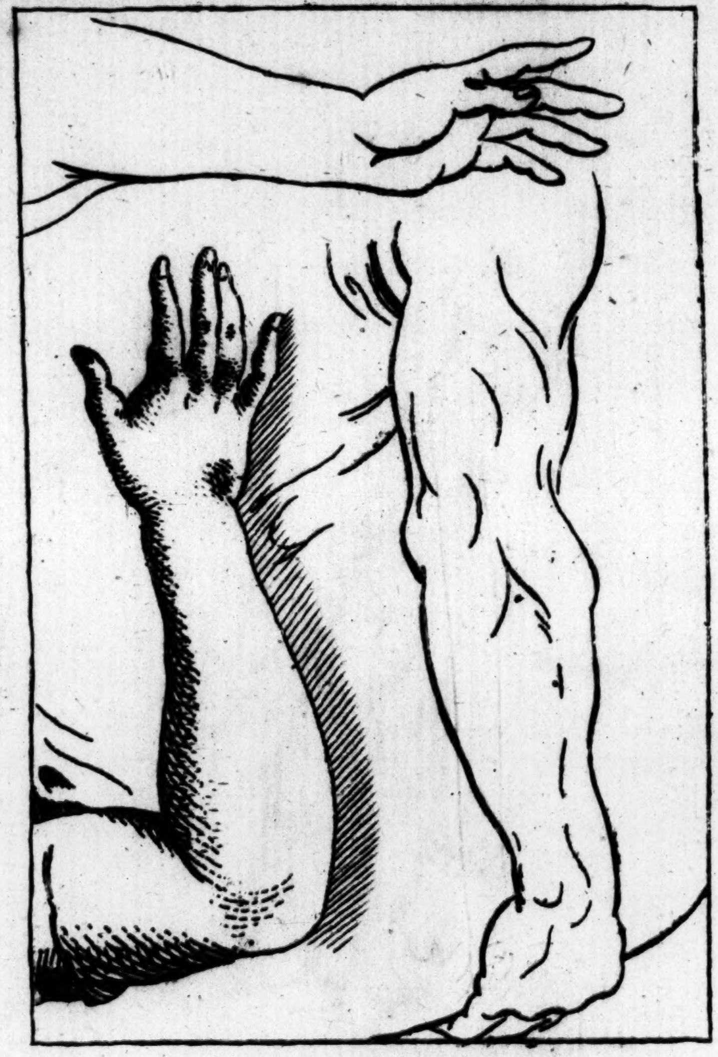

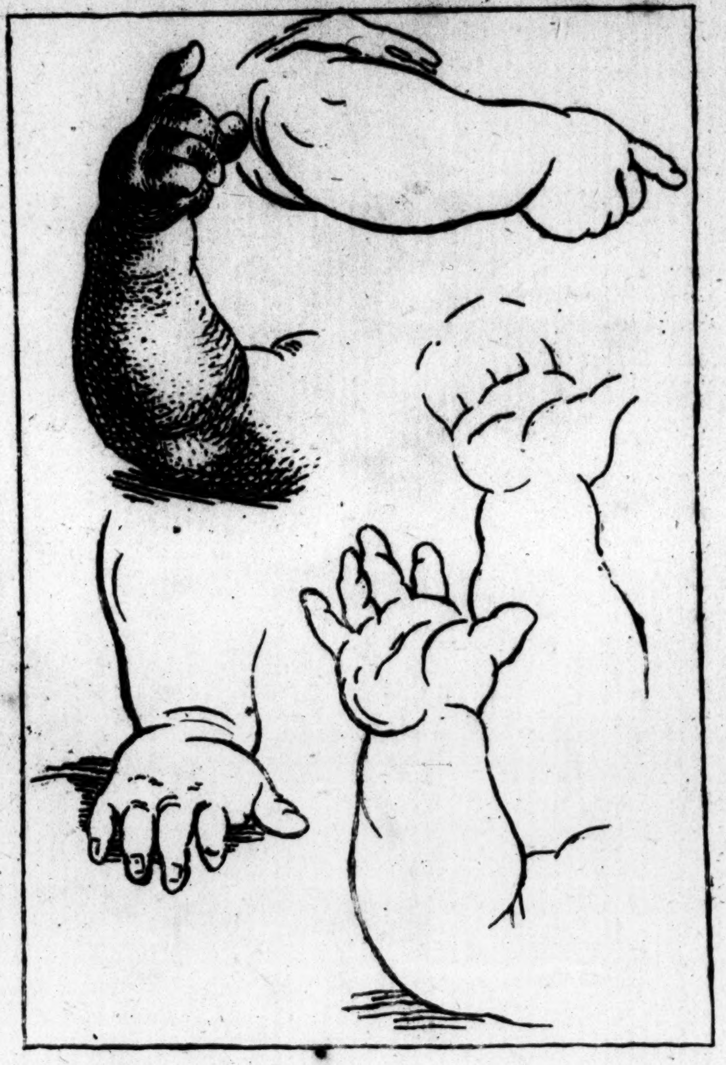

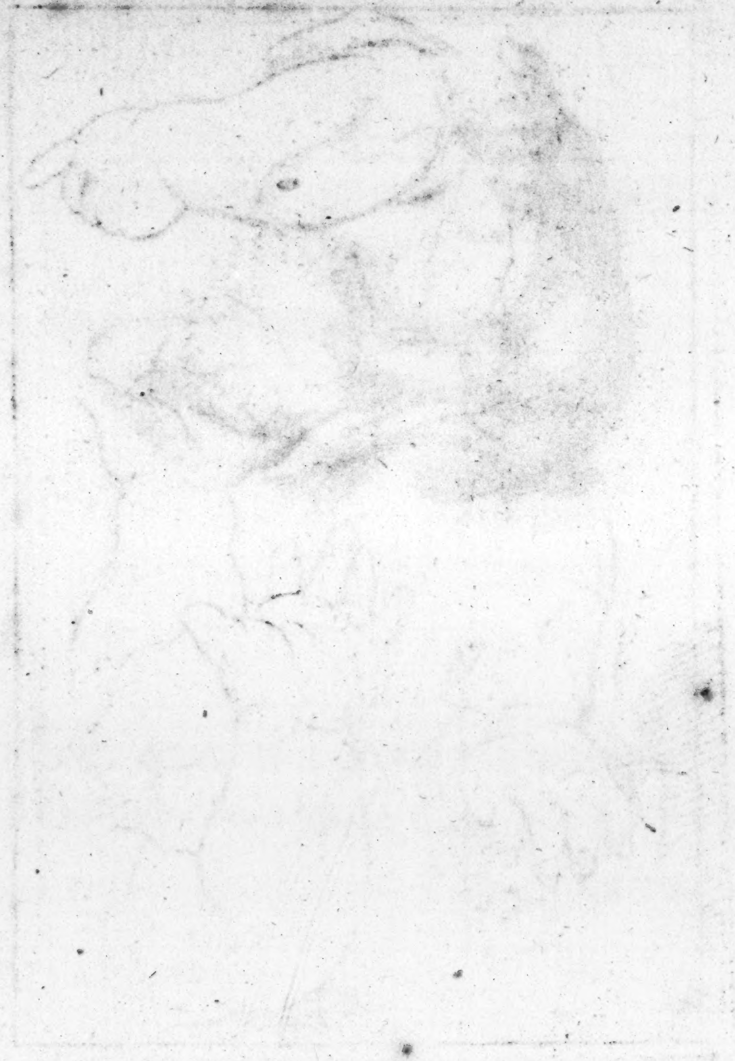

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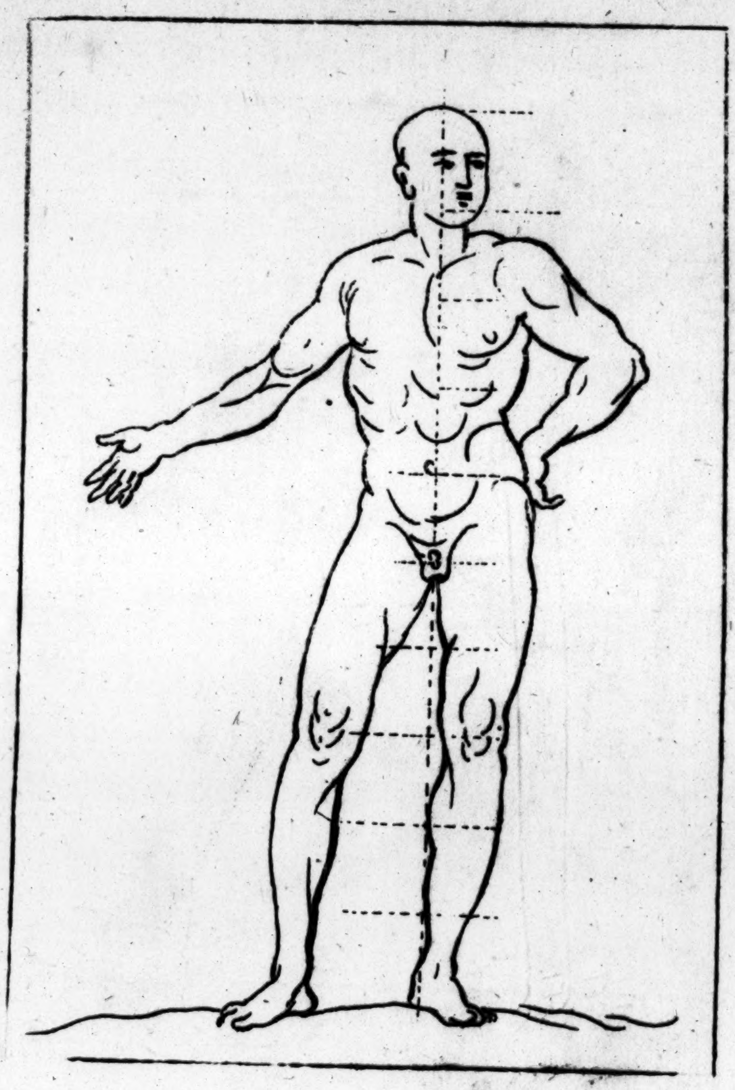

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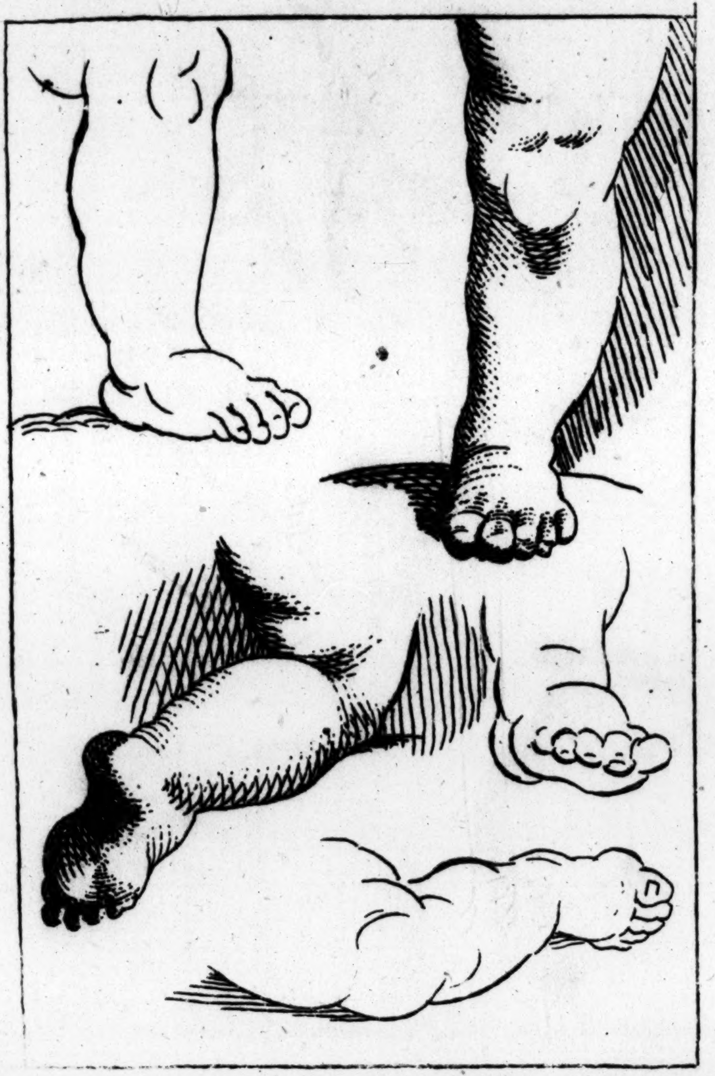

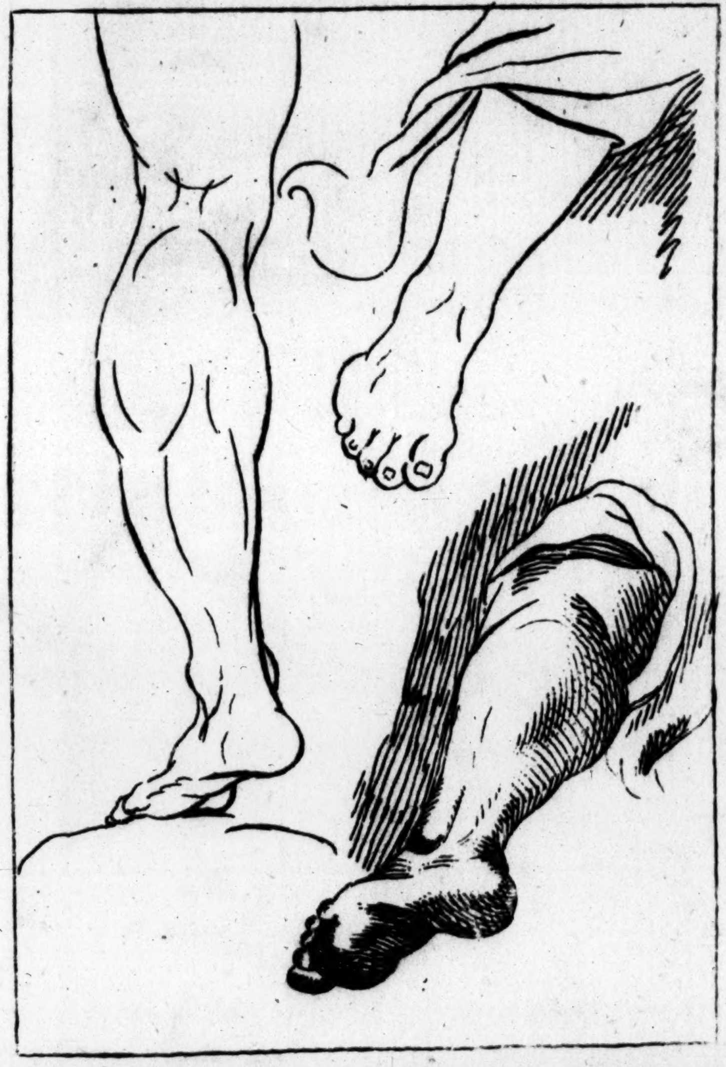

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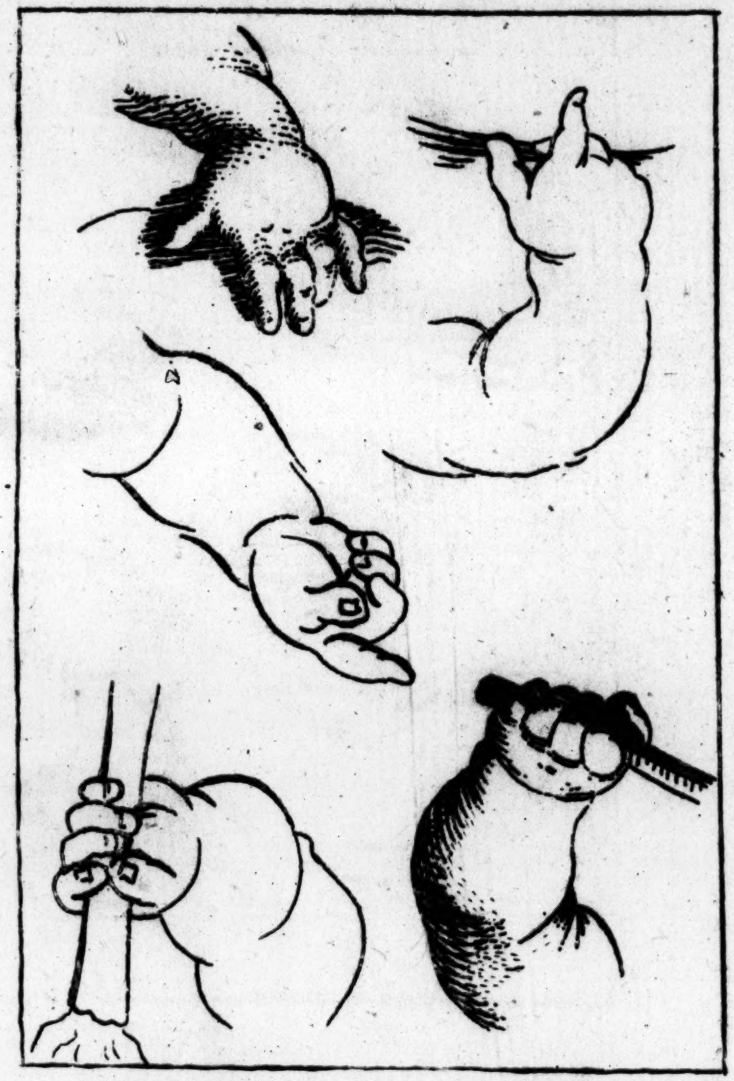

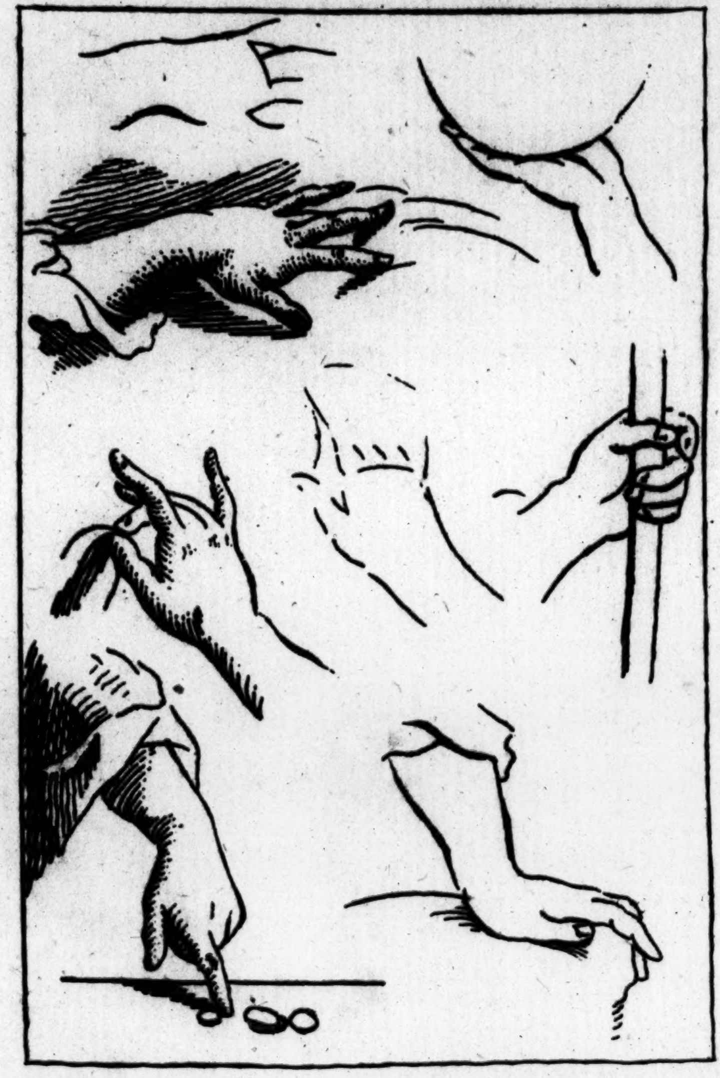

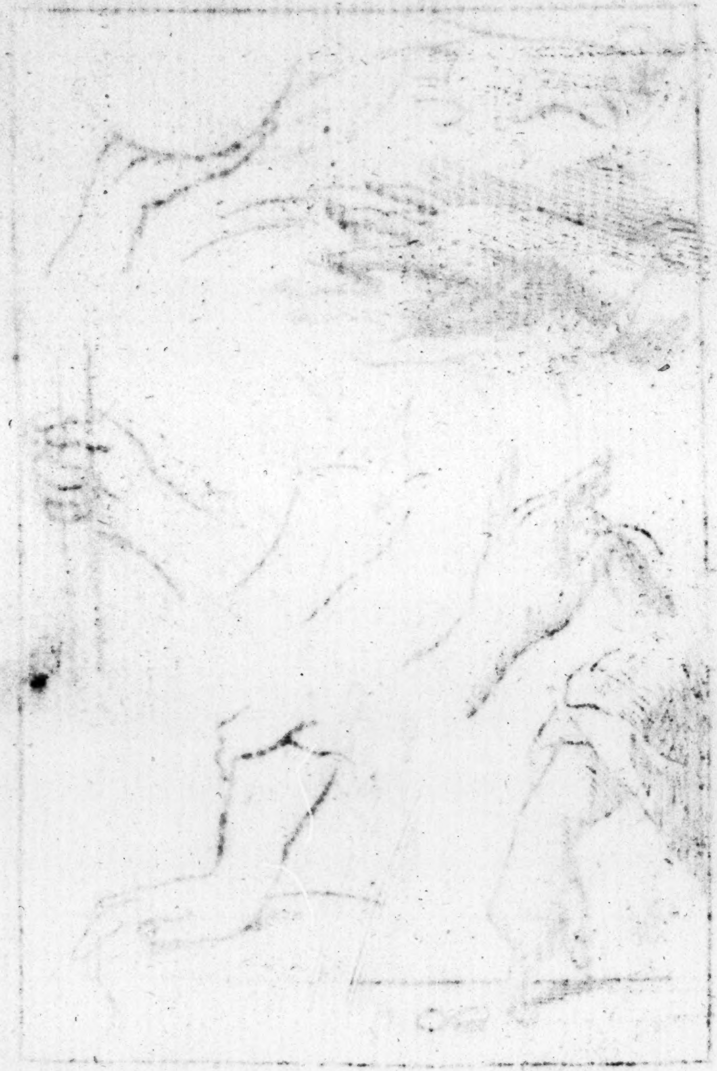

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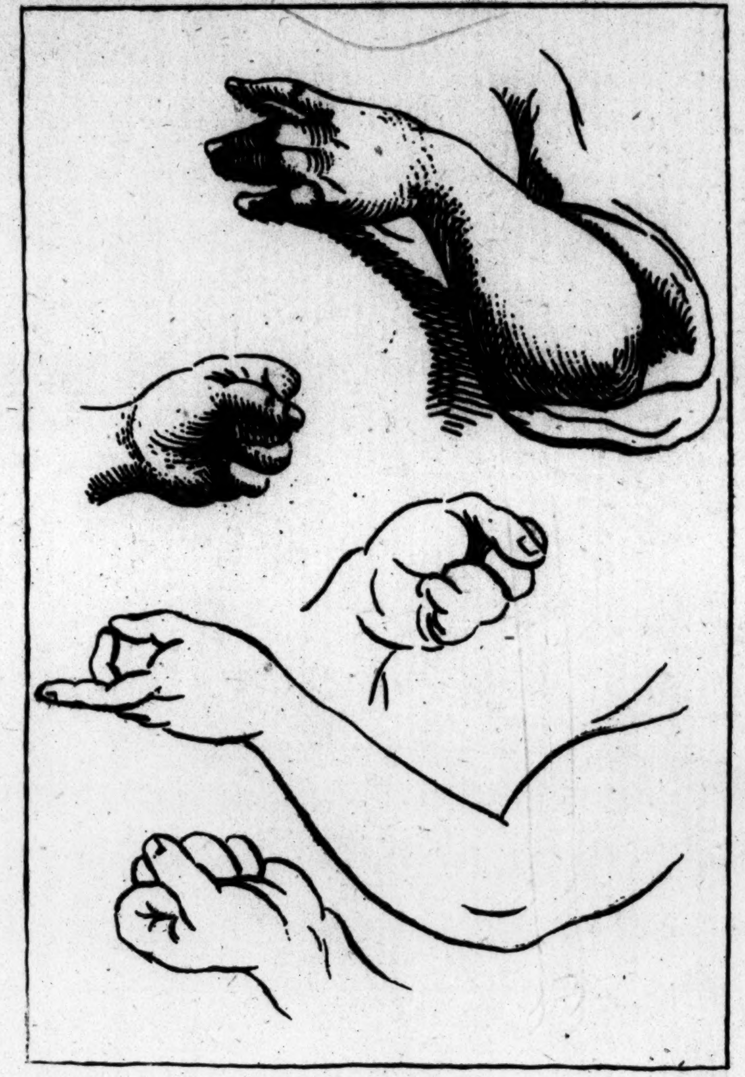

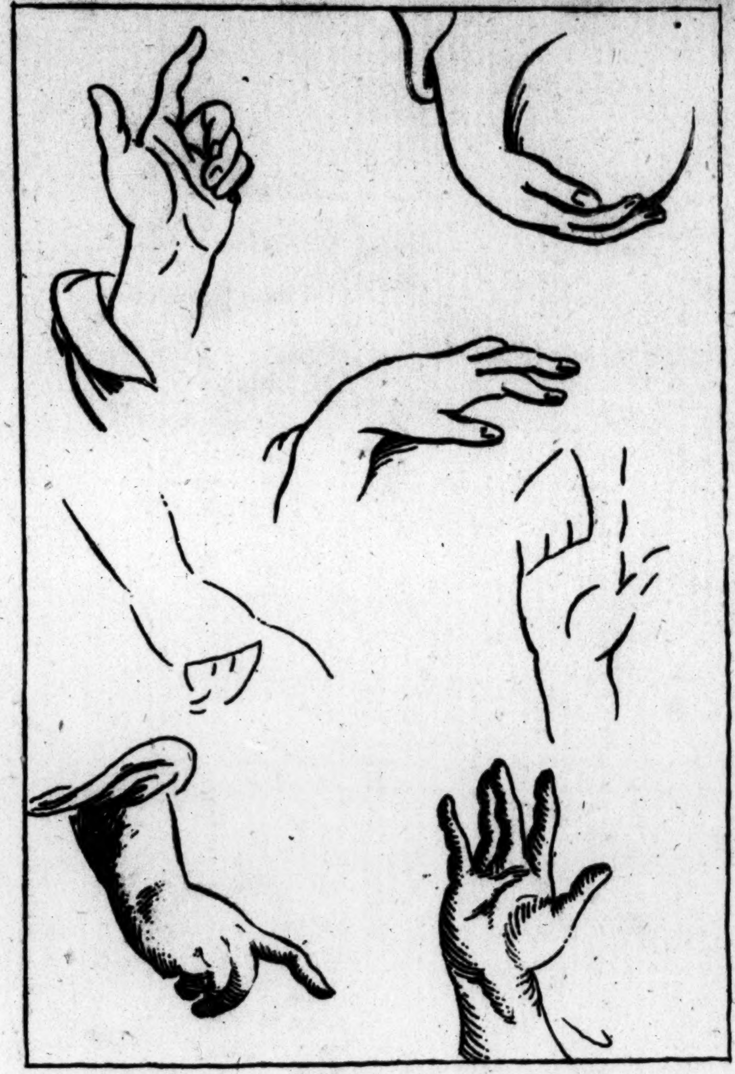

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